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ORIGINAL ARTICLES.

EPICYSTIC SURGICAL FISTULÆ FOR CYSTOSCOPIC EXPLORATION; INTRA-VESICAL TREATMENT AND DRAINAGE.

Read before the State Medical Association of Alabama, April 11, 1889.

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Epicystotomy has become an established and requently practiced procedure, and the dangers incident to opening the bladder through the abdominal wall is so slight that patients suffering from almost any vesical trouble are encouraged to have the bladder opened for diagnostic purposes and treatment at a time when the general health remains unimpaired; a practice which, a few years ago, would not have been resorted to by the most aggressive surgeon.

Catarrh of the bladder, irrespective of its cause, is always followed by a series of consecutive pathological changes which, independently of the partial or complete interruption of the passage of the urine, tend to destroy life. A dilatation of the bladder and ureters by retention of urine may give rise to such a degree of distention as to destroy life from suspension of important functions by mechanical pressure. During the stage of inflammation a paretic condition may occur, the blood-vessels in the vesical wall lose their support, and transudation and exudation take place into the paravascular tissue, which, combined with capillary stasis attending this stage of the disease, results in sloughing, infiltration, pyæmia, peritonitis and death. The daming up of the urine may, and does often, cause surgical-kidney, epididymitis and tetanus.

The treatment of chronic vesical catarrh resolves itself into a consideration of the causes producing the disease, many of which, the presence in excess of certain inorganic constituents of the urine, stone, stricture and hypertrophy, are capable of correction; whilst others—such as malignant tumors and certain conditions of the prostrate—may only admit of a palliation of the symptoms to which they give rise and the removal of which must be the first object in treatment. But when a paretic condition of the bladder exists provision must be made for the complete continuous emptying of the viscus; its thorough cleansing by frequent irrigation with hot sterilized water; and the promotion of a healthy tone in the mucous membrane and muscular structure of the bladder. The frequent introduction of catheters for drawing off residual urine and washing out the bladder has been productive of much harm, and, instead of giving relief, proved to be, by reason of their frequent introduction into the inflamed bladder to draw off the urine two or three times a day, a source of immediate and alarming symptoms. These facts are cogent reasons for adopting surgical means in all cases of intra-vesical troubles as soon as a diagnosis can be made, and often when it can not otherwise be made, for the complete emptying of the bladder, thorough cleansing, diagnosis, and intra-vesical treatment.

The epicystic surgical fistula is designed for drainage, intra-vesical treatment and cystoscopic exploration, and may be divided for consideration under the following heads:

I. Definition of epicystic surgical fistula.

II. Surgical resources in the formation of the epicystic surgical fistula.

1. Preparation for the operation.
2. Anæsthesia.
3. Position.
4. Incision and opening bladder.
5. Intra-vesical exploration and treatment.
6. Toilette and after-treatment.

III. Advantages of the epicystic surgical fistula.

1. Cystoscopic exploration.
2. Intra-vesical treatment.
3. Drainage.

I.—DEFINITION OF EPICYSTIC SURGICAL FISTULA.

Epicystic Surgical Fistula is the title here given to a supra-pubic fistula into the bladder created by the surgeon for exploration, intra-vesical treatment and drainage. A fistula, which, acting as an artificial urethra, is capable of giving free access to the inside of the bladder for cystoscopic exploration to provide a ready, convenient and comfortable means of emptying the

bladder at will, and gives the surgeon a competent opening into the viscus for intra-vesical applications.

It constitutes an essential element in the speedy and complete evacuation of the contents of the bladder in all epicystic operations, and imitates nature in the restoration of its own continuity and repair as the pathological changes within the bladder subsides.

II.—SURGICAL RESOURCES IN THE FORMATION OF THE EPICYSTIC SURGICAL FISTULA.

1. Preparation for the Operation.—The presence of two assistants, though not necessary, may be of valuable aid. A temperature of 80° or 85° Fah. should be maintained in the operating room from the beginning to the end of the operation. All hair is to be shaved from the pubis and all the details of antiseptic surgery are to be carried out so far as cleaning the pubis and abdomen. The bladder is emptied and thoroughly washed with warm water. When the water returns clean the bladder is slowly distended with warm sterilized water thrown into the bladder by means of a fountain syringe, with nozzle in urethra—a degree of pressure sufficient to distend the bladder to its utmost capacity—which can never be too great for the resistance of the bladder. It is better to fail in filling the bladder than to distend the bladder beyond the limit of competency. Indeed it is not necessary to fill the bladder to any degree of resistance. I have operated when the bladder was in an irritable condition and would not tolerate distention greater than the capacity of two ounces, and had no difficulty in avoiding the pre-vesical fold of peritonæum of finding the bladder. The water is secured in the bladder by tying the penis at the base with a rubber tube.

A colpeurynter is next to be well oiled and inserted into the rectum—the rectum having been previously emptied by enema—and filled with warm water. This distention brings the bladder into view above the pubis.

2. Anæsthesia.—My preference for chloroform is the result of my own personal experience with it. It is not free from objections as its depressing effect on the heart is well known. The operation usually occupies fifteen minutes; and, hence, its prolonged use would be unnecessary and uncalled for. The objection to ether is the suppression of the excretions and the frequency with which bronchitis is produced when administered to persons advanced in years. The best course to pursue, when the operation is prolonged, is to follow the use of chloroform by ether. The patient must be kept profoundly under the influence of the anæsthetic from the first incision until the superficial wound is closed.

3. Position.—The patient is placed on the back on an ordinary operating table with the legs extended as if in a position for perfect comfort and rest. Many surgeons claim advantages in the position recommended by Trendelenburg. Eigenbrodt emphasizes the fact[1] that the elevation of the pelvis in Trendelenburg's position[2] helps the surgeon to avoid the pre-vesical peritoneal fold at the time of the incision of the bladder.

I have employed this posture for intra-vesical operation by means of the supra-pubic incision with no advantage over the ordinary flat-back position. With two openings in the bladder for a continuous stream of clear water I have no trouble in illuminating every part of the bladder with the electric surgical light and thus enabled to examine the entire intra-vesical wall. Undoubtedly the position recommended by Trendelenburg, possesses advantages which to the author more than myself, makes it highly ideal. As for myself I prefer and recommend the flat-back position.

4. Incision and opening bladder.—A perpendicular incision three or four inches long is made in the median line above the symphysis pubis. The recti muscles are separated to symphysis. If the pyramidalis are in the way, the fibres should be cut. The transversalis fascia is divided on a grooved director from symphysis to within one inch of upper margin of superficial wound. Instead of following Guyon's manœuvre, I catch the bladder with a tenaculum on a line with the symphysis, through the pre-vesical fat, and cut through with a bladder knife into the bladder with one smooth, clean incision, to prevent undue disturbance of the cellulo-adipose tissue between the bladder and pubis and avoid infiltration. I have never seen a case where it was necessary to put up the pre-vesical fat, and with it the peritonæl cul-de-sac. If the bladder is caught on a line with the symphysis and cut downwards, no fears need be had for the peritoneum. Cutting this pre-vesical fat prevents its after dropping down over the opening into the bladder and acting as a valve to prevent easy escape of urine and causing infiltration. And, too, such a procedure gives a smooth incision throughout, and it is almost impossible to have infiltration, even when no drainage tube is left in the bladder and the urine is left to flow out through the fistulous track and taken up by a layer of absorbent cotton. In making the incision into the bladder, no attention is to be paid to any vein or veins which are sometimes met with. If cut, they will stop bleeding when the bladder is dropped back and the rectal bag removed. The operation is usually bloodless in the sense of hemorrhage. I have operated without the patient losing more than one drachm of blood.

5. Intra-vesical exploration and treatment.—The finger is carried into the bladder and a

[1] L. c., p. 72. Cf. Lang, Med. News, Dec. 4, 1886.

[2] In Trendelenburg's position the patient's legs are held over the shoulders of an assistant with the body resting on an incline table, much in the position which hogs are swung for spaying.

thorough search made for any tumors, villous growths or foreign bodies. The bladder is now emptied and the rubber around penis untied and the bladder well washed out with hot sterilized water. The bladder can now be examined with the cystoscope and surgeon's electric light. If tumors be found if practicable they should be removed; villous growths and any foreign body found should be removed. If nothing is found in the bladder, the surgical fistula, in the absence of malignancy, will be all that is required to relieve the cystitis.

6. Toilette and after-treatment.—The bladder is allowed to drop back into the pelvis and the superficial wound so closed by two sutures (including the skin and superficial fascia only), in the lower portion of the incision and one in the upper portion of the incision, as to leave a fistulous track of equal size from bladder to juncture of upper third and middle third of the superficial incision. A large rubber catheter is now to be introduced into the bladder through the opening and its distal extremity allowed to enter a urinal placed in the bed between the patient's thighs, or preferably at the patient's side. Professor F. Trendelenburg, directer of the surgical clinic of the University of Bonn, proposed, for draining the bladder in supra-pubic lithotomy, the T-tube in latero-abdominal position and open wound treatment as the simplest, safest and best. He makes an antiseptic dressing of iodoform gauze around the T-tube. There can be no real necessity for a tube of any kind to be introduced into the bladder for the purpose of conveying the urine from the bladder to prevent infiltration, irritation of superficial fascia and soiling of dressings.

If the urine is kept acid, by the administration of citric acid or some other more palatable acid drink, no bettter antiseptic than the acid urine can be secured for the constant bath of the parts. It should be allowed to flow out through the wound and absorbed by a pad of absorbent cotton placed loosely over the wound, and removed as often as soiled by the outflowing urine. By this method of emptying the bladder, no possible small amount of urine can be impeded in its outward flow, which is the case around and outside of the tube, when catheter or tube is left in for any length of time—a source of no little annoyance at times. This little collected or retained urine, around the outside of the tube alone, I have seen produce a hard chill and elevation of temperature, and become for the time an immediate, alarming and aggravating source of trouble. I never have seen the skin made sore or chafed by the outflowing urine in epicystotomy, or from its after-escape through the surgical fistula.

The bladder should be washed out twice daily with hot sterilized water, by means of a fountain syringe, with its nozzle introduced into the urethra, the water escaping through the epicystic fistula and guided into a bed-pan under the patient. The superficial stitches are taken out at the end of a week, and intermittent catherization by the fistula is then resorted to for the sole purpose of training the fistula and prevent its rapid closure. It is not necessary to catheterize for the purpose solely of drawing off the urine. In one case I never drew the urine save for the purpose of analysis, but occasionally introduced a rubber bougie to prevent the closure of the fistula. The drainage by the fistula alone is admirable, and the fistula will be well formed in twenty or thirty days, competent to retain urine without dripping and to allow its escape in a good projecting stream at will. With no tearing of the tissues, and with a clean cut, the drainage is perfect and the dangers are *nil.*

III.—ADVANTAGES OF THE EPICYSTIC SURGICAL FISTULA.

1. Cystoscopic Exploration.—Nitze has by means of the cystoscope been enabled to diagnosticate tumors of the bladder in nine cases in which rectal palpation, the sound and other means had furnished negative results. One of the great difficulties in the cystoscopic exploration of the bladder is the presence of pus, mucus, and sometimes blood, which renders it exceedingly difficult to maintain a translucency of the fluid used to distend the bladder. By means of a simple fountain syringe a constant current of clear water may be kept within the bladder so essential to a complete observation of the trigonum Lieutaudii, the most interesting part of the viscus, the ureters; and to examine any affection of that viscus. The fistula may be made for temporary purposes of cystoscopy by the Peterson-Guyon-Perier operation; but I can see great advantages from a different operation, by Dr. Hunter McGuire, the object of which tends to eliminate as well as detect the trouble within the viscus; and, too, in the final construction of a permanent fistula, gives an easy after-method of exploration, and makes a better artificial method by reason of its length and extension upwards of two to three inches. Diagnostic purposes are met by the possibility of immediate detection of all local conditions, such as tumors, calculi, foreign bodies, neoplasms, the collection of fluids from the ureters, etc.

2. Intra-vesical Treatment.—Having by means of the epicystic exploration revealed the true nature of the intra-vesical trouble, the treatment resolves itself into the immediate necessities of the case. For instance, prostatectomy may be necessary, villous papilloma may be found and should be remedied; predunculated growths may be found which should be removed by the scissors or Paquelin's cautery, etc. In such cases, the opening in the bladder sufficient to introduce the

finger, should be enlarged downwards under the symphysis pubis, and the operation indicated should at once be performed. The object of the formation of the permanent surgical fistula is to meet the after indications in such operations, the details of which does not properly come within the province of this discussion. However, it is sufficient to state, what is reasonable and practicable, that a better means by which the intra-vesical wall can be reached and treated therapeutically has not yet been devised.

3. Drainage.—Permanent after-drainage in all intra-vesical operations cannot be necessary; but is highly essential to secure good and sufficient drainage until the paravascular tissue is disengorged, the cystitis is relieved, and the urine becomes normal and passes per urethra unobstructed. And until this end is attained complete artificial arrangement for the escape of the contents of the viscus must be made. In such cases of prostatic hypertrophy or malignant growths when removal of the obstruction is impossible or contra-indicated, the epicystic surgical fistula is clearly indicated, and essentially necessary. It meets every possible indication for local treatment and gives the only controllable, ready and free drainage to viscus and kidneys. Urinary back pressure as the result of incompetency of the urethra from the various immovable prostatic troubles is often an immediate and remote cause of surgical-kidney, which can only be removed or relieved by supra-pubic drainage. In conditions of the bladder, of long standing cystitis, as in the case reported by me in the Virginia Medical Monthly,[3] in which the urethra, though made competent by cutting, was not sufficient to keep the bladder emptied without catheterization—a procedure which kept up a constant vesical inflammation, which, combined with capillary stasis attending the inflammatory process resulted in paresis.

I now have the pleasure of introducing that case, Mr. T. A. Nixon, to you fifty-eight days after the operation. His condition to-day is sufficient guarantee for all I have said in favoring the formation of an epicystic surgical fistula for the relief of chronic vesical catarrh. The result in this case is more than I promised. He can retain his urine several hours and without dripping of urine or pain to bladder. Urine completely under control and bladder relieved of pain.

A CASE OF SENILE CHOREA; WITH REMARKS.

Read before the Philadelphia County Medical Society, March 13, 1889.

BY J. M. ANDERS, M.D.,
OF PHILADELPHIA.

By the majority of authorities, chorea in aged persons is believed to be rare. Not many years ago, writers on the subject of chorea held that old age was of itself conclusive evidence that this disease did not exist in any given case. But since the collection and publication of twelve cases by Robert Saundby,[1] in 1884, the fact that senile chorea is a distinct affection can no longer be be doubted. From ordinary chorea, which usually occurs during the period of approaching puberty, it differs widely as to eitology, and, probably, pathology as well. Believing that the extreme rarity of the occurrence of chorea in the aged fully justifies those practitioners of medicine who meet with it in publishing an account of their cases, I make no apology for placing on record the following case, which came under my notice at the Episcopal Hospital. The resident physician, Dr. G. B. Tullidge, has kindly furnished notes of the case, to which only slight additions have been made.

J. B., æt. 60 years, occupation cloth-cutter, was admitted to the medical ward of the Episcopal Hospital August 27, 1888. Patient, prior to present trouble, was in most excellent condition. He has had small-pox, three attacks of gonorrhœa, and acute articular rheumatism, all over thirty years ago. His habits have ever been temperate, although he has occasionally indulged in alcoholic drinks. His father, of sound body, was drowned. His father's brother died of old age at 90 years, and his mother, prior to death from cholera, in 1847, had always been in vigorous health.

He attributed the present attack to exposure while at Atlantic City in July, 1887. One hot night he slept with his head on the sill of an open window; the wind changed, the temperature fell, and he awoke cold, chilly, and suffering with pain and stiffness in the muscles of his neck. From that morning began the symptoms now complained of. The patient, an American by birth, has always lived in Philadelphia, is 5½ feet tall, and spare, though as well nourished as he has ever been. He comes complaining of his inability to keep at rest while awake, of oft-recurring attacks of fidgets. The attacks have so increased in severity and frequency as to compel cessation from work. There is a slightly increased prominence of the nape of the neck, though no actual deformity of the cervical portion of the spinal column is discernible; and his head is constantly held more rigidly erect than would be expected of a man of his age. During an attack the muscles of the neck, back and chest undergo irregular spasmodic contractions, causing shrugging of shoulders, twitching of arms, and well-marked jerking of head, which is thrown in the backward direction. The face also is thrown into movement, and exhibits characteristic choreic grimaces, with rolling of eyeballs. As the attack proceeds, the diaphragm becomes similarly affected, causing great difficulty in breathing. Inspirations are jerky and irregular.

[3] Virginia Medical Monthly, April, 1889. Alabama Medical and Surgical Age, April, 1889. New York Medical Journal, April 13, 1889

[1] Lancet, November 24, 1884, quoted by Sinkler.

The accompanying dyspnœa is always a most prominent and distressing symptom. During the attack, great pain is felt in the back of the head and neck. Each exacerbation lasts from one to four hours. During the intervals he feels quite well, and has only an occasional involuntary twitch. Insomnia is very great, and night follows night before he procures refreshing sleep. The intervals of quiet vary considerably in length; one, two, three or more days may intervene between these attacks. His appetite is fair, and his digestive functions are performed with apparent vigor and regularity. The action of the heart is constantly rapid, the pulse-rate ranging from 110 to 120 per minute, but there are no evidences of organic valvular disease detectable. Neither are there any characteristic subjective or objective symptoms dresent, pointing to any nervous trouble other than chorea. There is no dementia.

When admitted he was placed on a mixture of quinia, iron and strychnia; also was given 10 grs. of bromide of potassium every three hours. This treatment was continued for three weeks without benefit. The bromide of potassium has been mentioned by Charcot as being of service in this disease. Arsenic, which was administered both by the gastro-intestinal route and hypodermatically, proved valueless, as did also antifebrin given in doses of grs. iv every three hours. During the attacks, hypodermatic injections of morphia gave relief, causing sleep. The hydrobromate of hyoscin—a remedy recommended by Dr. S. Weir Mitchell, seemed to have a beneficial effect when first used, though it soon lost its virtue.

But, though treatment was apparently of no avail in this case, Charcot's view that chorea in the aged is incurable is not supported by all of the facts, since Dr. Russel relates a case that recovered at the expiration of three months, from the use of sulphate of zinc.

Dr. Sinkler has reported two cases, one of which recovered in four months. Still another case, first seen by Dr. Saundby when the patient was 50 years of age, suffering from left-sided chorea of an intermittent form, again fell under his observation when 66 years old, and at this time was almost cured.

Is senile chorea due to emotional causes? The emotional theory was advocated by Charcot in his famous lecture bearing the caption "Chorea in Old People."[1] But, as pointed out by Saundby, this view must, in the light of facts more recently observed, be abandoned. The two cases reported by Charcot (*loc. cit.*) were demented; also a case reported by E. J. Davis,[2] and still another by M. Bacon, in which instance the patient had chronic mania.[4] Thus, in a total of thirteen recorded cases, in all of which the mental condition was noted, four were demented—less than one-third.

Dr. Saundby saw three patients suffering from this disease, all of whom had advanced degeneration of the arteries. This observer believes "that it will be found that the pathology of this disease is some actual structural change, such as small hæmorrhages in the corpus striatum, and that it is not merely a functional derangement." In my own case there were present evidences of commencing atheroma. Of all the collectable cases, only four showed this condition—too small a proportion to base thereon positive conclusions.

The influence of sex may be shown to be considerable, since in eleven of the thirteen cases reported, the sex has been noted, and of these eight were males, three females. This would appear to be an exact reversal of the influence of sex in chorea occurring among children, for in the latter, according to the statistics of Dr. Wharton Sinkler,[5] and others, the ratio is about three to one in favor of the girls.

Of the thirteen cases, only three were associated with heart disease, a fact showing but a feeble, if any, connection between senile chorea and cardiac affections. Not more than two of the total number gave a history of previous rheumatism. A final point to be made is that any theory of the pathology of chorea in the aged, based upon the meagre data at present attainable, must be purely speculative.

DR. WHARTON SINKLER: I have recently had the opportunity of seeing this patient of Dr. Anders, at the Philadelphia Hospital, where he is now under the care of Dr. Lloyd. The movements seem to be pretty much as they were when he was at the Episcopal Hospital. I think that cases of senile chorea are not quite so rare as one would suppose from the literature of the subject. I have frequently seen in old persons an irregular choreic movement of the extremities. I have now under my care an old gentleman, aged 80, in whom there are choreic movements of the left arm and leg. On inquiring in reference to the duration of this movement, I learned that it had not been before observed either by the patient or his relatives. In this case there was a transient attack of right hemiplegia a couple of years ago. In senile chorea I think that there must be an organic lesion, due probably either to small hæmorrhages or embolism in the corpus striatum.

DR. WILLIAM OSLER: I think that senile chorea must be entirely separated from ordinary juvenile chorea. Almost all cases of senile chorea are probably associated with organic changes, whereas the evidence is uniformly in favor of the view that the chorea of children is very largely a functional disorder.

DR. ANDERS: I have in my paper pointed out

[2] Medical Times and Gazette, 1873, vol. i, p. 245.
[3] "Case of Chorea in the Aged," Medical Times and Gazette, vol. ii, p. 447.
[4] Quoted by Saundby.
[5] Pepper's System of Medicine, vol. v, p. 441.

that the chorea of the aged differs widely from chorea of childhood. I notice the influence of sex, and the fact that in children the results of treatment are, as a rule, quite satisfactory, while in the aged, with the exception of one or two instances, treatment has had but little effect. This would seem to indicate that there was some pathological lesion present in the chorea of aged persons to explain the difference in the results of treatment.

HYDROPHOBIA.

Read in the Section on Anatomy, Physiology and Pathology, of the Medical and Chirurgical Faculty of Medicine.

BY WILLIAM H. WELCH, M.D.,
CHAIRMAN OF THE SECTION.
[Reported by DR. WILLIAM B. CANFIELD]

Although since Pasteur's first publications on this subject, it has received the widest ventilation in medical journals, no apology is needed for a fresh critical review, so rapid are the additions to our knowledge and to such an extent does the estimation of the value of much of Pasteur's work depend upon results which can be determined only by the lapse of time. Although Pasteur's preventive inoculations against hydrophobia constitute the central point about which controversy has waged, it is not to be forgotten that Pasteur's discoveries and the investigations aroused by them have shed much light in many directions upon one of the most mysterious and fatal diseases. We are better able now than ever to consider the efficacy of the Pasteurian inoculations against hydrophobia.

He reported the results of the post-mortem examinations he had made in three cases of hydrophobia in human beings. In one case he had made serial sections of the medulla oblongata and pons from the 2nd cervical nerve upwards. The lesions in this neighborhood were small hæmorrhages, accumulations of leucocytes in large numbers in the peri-vascular lymph spaces and in scattered foci in the neroglic and thrombi, composed of blood-plates and of leucocytes in small blood-vessels. These lesions were for the most part microscopical and their extent and distribution could be determined only by the examination of a large number of sections from different parts. The lesions were especially well marked in and near the nuclei of origin of the spinal accessory, pneumogastric and glosso-pharyngeal nerves, and in the motor nucleus of the trigeminus. Cases have been reported in which even more extensive lesions than those have been found, their severity depending apparently in large measure upon the duration of the disease. While it cannot be claimed that these lesions are peculiar to hydrophobia, or by themselves suffice for its anatomical diagnosis, it is incorrect to suppose that hydrophobia is a disease without demonstrable anatomical lesions which bear a manifest relation to the symptoms of the affection.

Far more important than this the addition to our knowledge of the pathological anatomy of rabies following Pasteur's discoveries, are the contributions to a better comprehension of the causation of the disease. Before Pasteur's publications on hydrophobia, dating from 1881, about all that we knew of the virus of rabies was that it is contained in the salivary glands and their secretions and that infection often follows the bites of rabid animals. We now possess valuable information concerning the properties of the rabid virus, its distribution in the infected body, the manner of its transmission, the singular differences in its action, according to the seat of its inoculation, and the means for producing immunity against its invasion.

Although there is no reason to doubt that the infectious agent in the virus of rabies is a microorganism, no actual demonstration of this organism has yet been made. From material obtained from a series of rabbits which were inoculated at the Pathological Laboratory of the Johns Hopkins University with hydrophobic virus obtained from the medulla oblongata of a man dead of the disease, and which served to confirm the statements of Pasteur as to the behavior of these animals when inoculated with the rabid virus, efforts were made to demonstrate, both in the tissue and by means of cultures, some specific microorganism, but with entirely negative result. While we are not acquainted with the specific organism causing hydrophobia, we know many of its properties.

The virus of rabies is destroyed by comparatively low temperature, exposure for one hour to a temperature of 50° C. [122° F.] sufficing for this purpose. It is killed in a short time by drying, certainly within four days when exposed in thin layers capable of rapid desiccation. It is destroyed by exposure to the direct rays of the sun, even when surrounded by conditions preventing much elevation of temperature. According to Babes, the virus is more resistant to the action of corrosive sublimate and carbolic acid than most microorganisms, but it usually loses its infectious properties after exposure for three hours to the action of 0.1 per cent. sublimate, or of 1 per cent. carbolized solution. Galtier has pointed out the important fact that the virus of rabies may be demonstrated after forty-four days, and perhaps longer, in the cadavers of buried animals. A practical means of preserving the virus is to place the brain or cord of the infected animal in pure glycerine, which may be diluted with water, and should be occasionally changed.

It has been ascertained that the occurrence of infection with rabies depends largely upon the part of the body and the character of the tissues into which the virus is inoculated. The disease

always develops after inoculation of the virus into the brain or upon its surface, or into the eye, the period of inoculation being shorter and more definite after subdural inoculations. Inoculations into the substance of nerve trunks appears to be equally successful in rabbits, but somewhat less certain in dogs, although even with the latter inoculation into the pneumogastric nerves does not fail. Intravenous injection does not produce the disease in the ruminants unless very large quantities are used, and may fail in rabbits and especially in dogs. Especial importance attaches to the behavior of subcutaneous injections of the virus of rabies. Dogs often resist infection from injection of considerable quantities of even the most intense virus into the subcutaneous tissue. Ferran's super-intensive method of producing immunity in human beings, is to inject at once the strong virus into the subcutaneous tissue, and this has been done in over 200 cases without injury. If the injection be made into muscular tissue infection is more likely to follow. DiVestea and Lagari have shown that while simple subcutaneous injections are often unsuccessful in producing rabies, the application of the virus to the divided ends of nerve filaments in a cutaneous wound is generally efficacious in causing the disease. Although deep and severe bites of rabid animals are the most dangerous, hydrophobia may result simply from a mad dog licking a scratch.

One of the most important discoveries of Pasteur is the demonstration of the fact that in animals or human beings which have died of hydrophobia the virus is contained most abundantly in the central nervous system, and especially in the medulla oblongata. It is found constantly also in the salivary and lachrymal glands, sometimes in the pancreas, but it is usually absent from the blood, kidneys, spleen and liver. Only exceptionally is it present in the mammary glands and the neck. It is very rarely transmitted to the fœtus through the placenta.

There has been considerable discussion as to the manner in which the virus is conveyed from the seat of inoculation to the central nervous system. The evidence points to the transmission of the virus along the nerve, in fact it is claimed by Helman and others that the virus is capable of multiplication in nervous substance. Roux and others have found the virus present in the nerves of a bitten extremity when it has been absent in corresponding nerves of the opposite side. By killing animals at the proper period, it has been ascertained that after inoculation in the tail or posterior extremities the virus makes it appearance in the posterior part of the spinal cord sooner than in the medulla oblongata, while the reverse holds true when the inoculation is made in the head or posterior part of the body. These observations, taken together with the inefficiency of intravenous injections, and the absence of the virus from the blood, lead to the conclusion that the virus passes along the nerve trunks, although we have no information as to how this is accomplished.

It is a significant fact, which should be remembered in judging the results of Pasteur's treatment, that there is a period of so-called latent development of the virus in the central nervous system. In rabbits inoculated with the strongest virus (virus fixe), the period of incubation is six days, but as early as the fourth day the virus has been found in the medulla oblongata. Doubtless, therefore, in human beings, the virus is present for a longer or shorter period in the central nervous system before any charactetistic symptoms of rabies appear. Careful observation has shown that in rabbits this period is not really a latent one, but it is accompanied by elevation of temperature, increased frequency of respiration, slowing of the pulse-rate and loss of weight.

Dr. Welch said that there can no longer be any question that it is possible to render animals immune against rabies both before and after inoculations which would otherwise cause the disease. The independent and careful experiments of Ernst in this country are free from all partisan bias and have amply confirmed the statements of Pasteur on this point. The methods employed by Pasteur for protective inoculation against hydrophobia have been so often and so fully described in medical and other journals that Dr. Welch did not consider it necessary to repeat the description on this occasion. These inoculations are most effective in preventing the disease when undertaken soon after the reception of the poison with a large quantity of virus, and with the speedy employment of material containing the strongest virus (virus fixe). Animals may be rendered immune by single injections into the blood or the subcutaneous tissue of a large quantity of strong virus, whereas dogs which are bitten by mad dogs and which do not develop the disease, as often happens, are not left immune. Dogs which have once been rendered immune against rabies may preserve this immunity for at least two years, and doubtless for a longer period.

Pasteur attributes the immunity to the action of some substance which he calls "*matière vaccinale*," contained in the virulent material but not identical with the microörganism causing rabies. That immunity against infectious disease may be secured by the injection of chemical substances produced by the growth of specific bacteria, was first demonstrated by Salmon and Smith in the case of hog cholera, and has been subsequently demonstrated by Roux and Chamberland for malignant œdema and by Wooldridge for anthrax. It has not yet been found possible to prove conclusively the correctness of Pasteur's supposition in the case of rabies, but there is much which speaks in its favor.

Encouraged by the results of his experiments upon animals, Pasteur, in July, 1885, first applied to a human being his method of preventing hydrophobia by successive inoculations of the virus contained in the rabbit's medulla subjected to drying for different periods. During the years 1886, 1887 and the first half of 1888 there have been treated under Pasteur's supervision, either by the simple or by the intensive method of inoculation, 5,374 persons who have been bitten by animals either proven or suspected to be rabid. The mortality from hydrophobia, including even the cases which developed within a day after the cessation of treatment, was, in 1886, 1.34 per cent.; in 1887, 1.12 per cent.; in 1888, .77 per cent. If the fatal cases which developed within a fortnight after the end of treatment, and in which there is reason to believe that the inception of treatment was too late, be excluded, the mortality for 1886 falls to 0.93 per cent.; for 1887 to 0.67 per cent.; and for 1888 to 0.55 per cent.

Dr. Welch considered the various objections which have been made to Pasteur's method and to the value of his statistics. Some of these objections are of a purely hypothetical nature. Much force has been attached to von Frisch's experiments, which seemed to some to invalidate the scientific basis of Pasteur's method of treatment. Von Frisch claimed that it is impossible to render animals immune after the reception ot the virus of rabies in a manner certain to produce the disease. In opposition to von Frisch it has been demonstrated by Pasteur and others that, in a large proportion of cases, the development ot rabies may be prevented in dogs which have been inoculated beneath the dura mater with the strongest virus. The treatment, however, must not be deferred under these circumstances later than the second day, and must be by the intensive vaccinations. Bardach succeeded in this way in saving 60 per cent. of the dogs inoculated beneath the dura mater. This test is evidently the most severe one to which Pasteur's preventive treatment can be subjected, one far more severe than is required to meet the ordinary channels of infection with rabies. It must be admitted, therefore, that Pasteur's treatment rests upon a satisfactory experimental basis.

The criticisms raised against drawing favorable conclusions from the large mass of statistics published by Pasteur have been many, but the most important are that we are ignorant of the mortality following the bites of rabid animals, and that there are included in Pasteur's statistics an indeterminate number of persons bitten by animals not rabid. As regards the first point, there are various careful collections of statistics which show an average mortality of about 15 per cent. (Lablanc, Dujardin-Beaumetz, Horsley). All admit that bites by rabid animals on the head and face furnish a much higher mortality than this; it being given as 88 per cent. by Brouardel. To meet the second criticism, Pasteur's statistics, which are published monthly, are arranged in tables which embrace: *a*, persons bitten by animals proven experimentally to be rabid; *b*, cases in which the existence of rabies is certified by a veterinarian; *c*, cases in which there is reason to suspect rabies in the animal. Pasteur's statistics for class A, that is for persons bitten by animals proven experimentally to be rabid, for the years 1886, 1887 and the first half of 1888, yield a mortality from rabies of 1.36 per cent.; or, if those who died within a fortnight after treatment be excluded, of 1.09 per cent.

Dr. Welch collected from Pasteur's reports for the first half of 1888 those bitten on the head and face by animals proven experimentally to be rabid. There were 59 cases, with 4 deaths from rabies during treatment and 2 following treatment Of the latter 1 was seized three days after the cessation of treatment, and it is reasonable to suppose that in this case the treatment was begun too late. If this case and those dying during treatment be excluded, there remain 54 cases with 1 death, a mortality of 1.85 per cent.

In view of the universally conceded high death rate following bites on the head and face by rabid animals, this result leaves no room for doubt as to the efficiency of Pasteur's treatment, although it is not unfailing.

It is a sufficient answer to the assertion that has been made that Pasteur's intensive inoculations are dangerous in that they may actually produce the disease, that the mortality from rabies is strikingly smaller after the application of the intensive method than after the simple treatment.

SUCCESSFUL CASE OF NEPHRORRAPHY FOR FLOATING KIDNEY.

Read before the Philadelphia County Medical Society, March 27, 1889

BY W. W. KEEN, M.D.,

PROFESSOR OF SURGERY IN THE WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA.

Miss E. J. F., of Sunbury, Pa., æt. 35, height four feet eleven inches, weight ninety-two pounds, was sent to the Woman's Hospital on October 4, 1888, by Dr. Mary A. McCay, with a diagnosis of floating kidney. For the following notes I am indebted to Dr. Chapin and Dr. McKee, resident physicians. The patient was delicate as a child; menstruation began at 15, and was always painful and irregular. At 18 years of age she was thrown from a wagon, falling forward with considerable force on her chest and abdomen. Shortly after the fall she suffered with severe pain in the right side and a great deal of distress across the back. Menstruation ceased for six months, and was followed by dropsy and severe illness. There was frequent inclination to vomit,

and a great deal of palpitation of the heart. In spite of constant medical attention, she dragged out a miserable existence. About seven years after the fall she noticed a movable tumor in the abdomen, which Dr. McCay believed to be a floating kidney.

Present condition.—Appetite and sleep poor; urine 1020, slightly alkaline, twenty-nine ounces in twenty-four hours, no albumen, no sugar. Heart and lungs normal; uterus retroflexed. In the right abdomen was a tumor, about the size of the kidney, which could be freely and easily pushed two or three inches to the left of the middle line back into the right lumbar region, or down into the right iliac fossa. Neither the hilum nor the blood-vessels could be distinctly made out. Percussion over the position of the right kidney showed a tympanitic note, the left renal dulness being distinct and normal. The tumor was evidently not connected with the uterus, ovary, or liver.

Operation, October 26, 1888.—Ether was administered. An oblique incision was made at the outer border of the quadratus lumborum four inches long. As soon as the abdominal fat was discovered, search was made for the kidney. The colon was first found, but the kidney was absent from its normal position. Strong pressure being made on the abdominal tumor, it was partly pushed back into position, but could even then only be touched by the finger tip. On separating the borders of the incision by retractors, it was seen to be the kidney, bare of all fat. In order to replace it entirely, it had to be seized by a volsella. Seven carbolized silk sutures were next introduced by a Hagedorn needle, four posteriorly and three anteriorly, through the capsule and substance of the kidney, by which it was attached to the muscles and aponeurosis of the abdominal wall. Seven deep sutures of chromicized catgut were then introduced through the entire muscular wall of the loin, but they were not tied, as I intended that the wound should remain open for a few days, if not permanently, in order to produce cicatricial tissue between the kidney and the muscular wall. No provision for drainage was necessary of course. The wound was covered with an ample bichloride gauze dressing. Her recovery was entirely uneventful. Her highest temperature was 100.9°. The urine was entirely free from any blood, though the bladder was irritable, and the catheter had to be used for several days. The wound was so completely filled up within the first forty-eight hours, that I removed the stitches that had been passed through the muscular wall. I kept her flat on her back for four weeks, when she was allowed to rise for a short time. There was considerable, apparently rheumatic, pain in the small of the back for three or four weeks after the operation, which disappeared and again reappeared, and which seemed to be benefited by salol. Seven weeks after the operation there was a moderate amount of albumin in the urine, which disappeared after the use of Basham's mixture for three weeks. Soon after she got out of bed, I tried the effect of a pad to support the kidney in front, but its use caused so much discomfort that I abandoned it, trusting wholly to the silk sutures and cicatricial tissue to hold the kidney in place. The tumor formerly discovered in the abdomen was entirely gone, and the normal renal dulness reëstablished, though a little lower down. She went home on the 5th of January, 1889. I heard from her to-day, March 16, 1889, and she says: "My back is still weak, but the pain is fast disappearing. The kidney is still firmly anchored, and I am feeling better generally. Words cannot express my gratitude to you for what you have done for me."

REMARKS. *First, the cause.*—A lax abdomen following frequent pregnancies has been supposed to be the origin of floating kidney, as it is of floating liver. In the case here narrated, the patient was unmarried, and the abdominal wall was not at all lax. Again, the absorption of the perinephritic fat has also been supposed to be a cause, but in this case as soon as the abdominal wall was penetrated, the perinephritic fat was at once encountered. But it was a noticeable fact that the kidney itself was entirely free from any fat. In other words, the fatty bed in which the kidney should lie was in its proper place, but the kidney was displaced and there was no fat on the kidney itself. It seems reasonable to conclude that the dislocation of the kidney was due to the fall at the age of 18, though the abdominal tumor was not discovered till seven years later. Landau, who has written the best monograph both upon floating kidney and floating liver, states that of 314 cases of floating kidney, 273 were in women as against 41 in men. In 178 cases, it existed on the right side in 151, on the left in 13, and in 14 on both sides. The present case being in a woman, and upon the right side, emphasizes still further his statistics.

Secondly, the symptoms.—Digestive disturbances, especially constipation and very fœtid breath, were not marked, though they were present to a moderate degree. The chief trouble was pain and constant discomfort, which was not only physical, but mental, the very existence of the tumor being a source of constant worry. The tumor itself was not especially tender to the touch, but it created a constant aching pain. Neither the hilum nor the pulsating renal artery could be distinctly made out, but the character of the tumor and the altered renal dulness made the diagnosis quite clear.

Thirdly, the treatment.—Recumbency alone has been advised by Landau, but this seems to me altogether too expectant. Only the most sanguine

could believe that by this treatment, if such it can be called, a kidney would resume its normal position and quietly continue there sufficiently long for the adhesions to be reëstablished with any prospect of permanency.

I did not try any treatment by pad or bandage, as the patient was from a distance and could not remain the long time necessary to decide whether such palliative treatment would answer. On the other hand, extirpation of the organ was equally foreign from my thoughts. In my opinion, this should only be done after failure of an attempt at fixation. The danger to life of a floating kidney is absolutely *nil*. It is, therefore, only to remedy the discomfort that exists that we operate. Hence, I do not think extirpation at all justifiable unless we first attempt to fix it *in situ*, and having so failed, it is only justifiable even then in case the discomfort is very great. Dr. Maurice H. Richardson (*Boston Medical and Surgical Journal*, June 14, 1888), who has published an excellent paper with a full bibliography, quotes from Brodeur the following figures: Of 235 nephrectomies, 125 were done by lumbar incision, with 47 deaths (37.6 per cent.), 110 by abdominal incision, with 55 deaths (50 per cent.). As against this large mortality from nephrectomy, however, Gross has collected 17 cases of nephrorraphy, with only one death, a mortality of only 6 per cent. It should be added also, that in the fatal case (Ceccherelli, *Centralbl. für Chir.*, 1884, 44, 743) the surgeon passed the stitches around the twelfth rib, a procedure which is absolutely needless as well as dangerous.

Hahn (*Centralbl. f. Chir.*, 1881, p. 449) first proposed fixation for a floating kidney, by operative procedure, and practically perfected the operation. The operation is simple. The patient being laid upon the side, an oblique incision is made at the outer border of the quadratus lumborum. The edge of this muscle being recognized, the perinephritic fat is found immediately in front of it, at its outer border. This fat having been cut or torn through, the kidney may be seen at once, but, if it is very movable, it may be so far displaced as not to be seen, or, as in the present case, may be even felt with difficulty by the tip of the finger, even when an assistant pressed it firmly back through the abdominal wall.

Mr. H. Morris (*Surgical Diseases of the Kidney*, p. 45) makes a distinction between a kidney which has no mesonephron, but moves about freely behind the peritoneum, this being called "movable kidney," and a "floating kidney" which does possess a mesonephron, and therefore floats freely in the peritoneal cavity. In cases, therefore, of a strictly floating kidney, it would be necessary to open the peritoneal cavity before it could be fixed in the loin. This distinction is confirmed by the four cases of dissection to which Morris refers. Comparing them with the present one, the range of movement to the left of the umbilicus and into the right iliac fossa was so great in this case, that it would seem proper to call it a "floating kidney," yet, at the operation, no renal mesentery or mesonephron was found. The probable mode of its production would also militate against the existence of any mesonephron. The kidney was far away from its normal position, but when pushed back into its proper place no layer of the peritoneum could be found that by any possibility could be called a mesonephron, and the peritoneum was certainly not opened.

In spite of the fact that Paoli (*Centralbl. f. Chir.*, 1885, 51, 910) cut through the twelfth rib in order to obtain room, it would seem to be rarely necessary to do so. When found and pressed back, the kidney should be fixed as nearly as possible in its normal position. Usually it will be impossible to replace it as high as it was at first, but lowering the site by two inches is not uncommon and seems to be of no importance.

The sutures that have been employed (either of silk or of catgut, disinfected, of course) may be passed (1) through the capsule of the kidney, or (2) through the parenchyma and capsule both, and may either be (3) left permanently or (4) removed. In this case I employed antiseptic silk, which I consider decidedly the best, and passed the stitches not only through the capsule, but through the parenchyma of the organ itself, three on the anterior surface and four on the posterior, stitching the kidney to the muscles, and what I consider more important, to the aponeurosis, which exists on each side of the incision. Finally, these stitches were not removed, but were left *in situ*. I believe with Svennson (*Centralbl. f. Chir.*, 1886, 824), that many failures have been due to employing absorbable catgut, to the avoidance of passing the stitches through the substance of the kidney, and to removal of the stitches, which in all cases I think should be left in, whatever the material employed. Svennson inserted as many as fourteen silk stitches, which were left in place and caused no trouble. The wound is best left to heal by granulation. I introduced a number of stitches to close the abdominal wall if necessary, but in twenty-four hours it was so filled up that it was evidently a needless precaution. The larger amount of cicatricial tissue that is produced by leaving the wound to heal by granulation probably fixes the kidney more firmly.

Another very important point is, that the patient should lie flat on the back for at least a month after the operation, in order that the cicatricial tissue binding it in place may become thoroughly developed and firmly established. Even then, I would advise some support for the kidney in front by a pad or bandage, provided

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the patient bears it well. In this case I soon abandoned it, as it caused too much discomfort. It is to be noticed that though the stitches were passed through the kidney substance, the patient had no hæmaturia (this was carefully watched for) and that no inflammation or reaction seemed to follow. But seven weeks after the operation considerable pain developed in the region of the kidney together with some albuminuria. This disappeared, however, after the use of Basham's mixture. The pain seemed to be rheumatic, and was soon relieved by the administration of salol.

A CASE OF NEPHROTOMY.

Read before the Philadelphia County Medical Society, March 27, 1889.

BY L. W. STEINBACH, M.D.,
OF PHILADELPHIA.

On July 17, 1888, Mrs. Anna H., 44 years old, from New Jersey, was sent by her attending physician to my department at the Polyclinic with a statement that she had been under his care for about a month, that she presented symptoms of hepatic and gastric disorders which brought about anæmia, nervousness and irritability of the heart. She complained of indigestion, frequent vomiting of food or of mucus, attacks of palpitation of the heart, and loss of flesh. One week ago his attention was directed to an induration in the right hypochondriac region, and, deeming it of serious import, he referred the patient to our clinic.

From her own statements and those of accompanying friends we gathered, in addition to the above, the following history:

Mrs. H. was formerly a hard working country woman, who bore six healthy children, but had had no miscarriages. She suffered in several of her confinements with puerperal mania, but considered herself in good health until eleven years ago, when, she thought, she became dyspeptic. Five years ago she noticed a lump in her abdomen, of which she made no mention to anyone until one month ago, up to which time she was able to attend to her household duties. She complains of headaches and constipation, and has not noticed any sediment in or discoloration of the urine, nor could she recall having suffered with pain that would indicate the passage of a biliary or renal calculus. Her pulse, respiration and temperature are normal, she looks anæmic, the complexion is muddy, her conversation and behavior indicate the existence of some mental weakness, the body is emaciated. Inspection shows a prominence in the right lumbar region, whilst percussion and palpitation reveal the presence of a tumor extending from the lower border of the ribs vertically for about seven inches, and, laterally, occupying the centre of the lumbar region to the extent of three inches. The percussion dulness is continuous with that of the right lobe of the liver. The tumor is freely moveable below, and felt through the abdominal walls imparts the sensation of a bag filled with small pebbles. Beliving that the case before me was one of a gall-bladder filled with calculi, and fearing lest manipulation would cause rupture of the cyst, I desisted from further palpation and directed my inquiries toward finding other symptoms of biliary obstruction. I drew off the urine with a catheter and submitted it to a chemical analysis, which showed the absence of albumen and the presence of some bile-pigment. No particulars of the nature of the stools could be obtained. In a letter directed to her physician, I gave it as my opinion that the patient was suffering from the effects of an enormously distended gall-bladder filled with calculi, and recommended a cholecystotomy.

One week later, she returned with the consent of her physician ready to undergo the proposed operation. After a preparatory treatment by baths, a laxative and rest in bed for two days, and after a consultation with my assistants and the physicians composing my class, in which the existing symptoms, and especially the absence of pronounced jaundice, were separately and carefully considered, I believe there was no more reserve in the minds of these gentlemen than in my own that the former diagnosis was the correct one. Dr. Keen also hastily examined the patient, concurred in the diagnosis and lent his kind assistance in the operation.

On July 26, the patient being anæsthetized with ether, an incision three inches in length was made in the right linea semilunaris, over the most prominent portion of the tumor, beginning at the border of the ribs and dividing the abdominal muscles and peritoneum; the apex of the tumor was reached without encountering any of the abdominal viscera. The calculi could now necessarily be felt more distinctly than before the division of the abdominal wall, and, meeting with difficulty to place the tumor on the trough-shaped apparatus devised by Dr. Keen, it was decided to pick up a fold of the cyst between two pairs of hæmostatic forceps and make an incision between the forceps, so that the calculi might be removed without permitting the escape of bile or mucus into the peritoneal cavity; this was accordingly done, and a few pieces of calculus removed, which, however, did not correspond in shape, color and general appearance to calculi of biliary origin, especially when the forceps grasped a stone evidently of large size and immovably fixed.

The idea of impacted gallstones was dispelled by the appearance of these calculi, and the thought that flashed upon the mind of every one was, that the tumor was a kidney.

The fear of rupturing the normal gall-bladder

having suddenly vanished, the lips of the abdominal incision were drawn apart more freely, which brought to view the margin of the right lobe of the liver and a normal gall-bladder in its normal position.

Further examination showed the tumor to be the right kidney distended by several calculi of different shapes and sizes. The organ itself was twisted by being turned upon its vertical axis from behind forward and to the left, and upon its horizontal axis from above downward and from behind forward, so that the dorsal surface and the upper end presented at the anterior abdominal wall.

It was now at once decided to remove the kidney, a superficial examination indicating the existence of a kidney on the left side. The pedicle of the tumor, consisting of ureter, artery and vein, was ligated *en masse* with a silk cord, the kidney cut off, the abdominal incision closed with sutures and dressed. The patient was put to bed, and after half an hour came out from under the influence of the anæsthetic and inquired of the nurse about the particulars of the operation. She gave no evidence of pain or suffering, and assumed her usual air of indifference to her surroundings which, according to the statement of her niece, was her peculiarity. Three hours after the operation the bladder was catheterized, but no urine obtained. Catheterization was repeated at intervals of six hours during the two succeeding days with a like result. The temperature at 8 o'clock P. M., six hours after the operation, was 101° F., falling to 99° on the following morning, gradually rising to 103° towards evening, and falling in the same manner to 100° on the morning of July 28. She slept for a few hours during the night after the operation, and after a small dose of morphia; took moderate amounts of nourishment and some stimulants. About noon of the third day began to complain of soreness all over the body, became irritable and restless, but continued to take milk and whisky. She passed no urine up to the time of her death, which occurred at 6:20 P.M., fifty-four hours after the operation, caused by suppression of urine. A post-mortem examination was not held.

The removed kidney with the calculi weighed fourteen and a half ounces, and is among the pathological specimens which Dr. Keen presents this evening.

In submitting the case for discussion and criticism of the society, without explanations in justification of the course of which I have pursued, I am adding one to the great number of recorded and unrecorded cases of movable kidney, the removal of which has been attempted or accomplished in the belief that the tumor was ovarian, uterine, splenic, or belonging to any of the abdominal or pelvic organs.

A CASE OF LAPAROTOMY FOR EXTRA-UTERINE PREGNANCY.

A Paper read at the Allegheny County Medical Society, March 19, 1889.

BY X. O. WERDER, M.D.,
OF PITTSBURGH, PA.

At the November meeting of this Society I reported a case of extra-uterine pregnancy in which I had performed abdominal section with a successful result. To-day I present the specimen of my second case of tubal pregnancy, removed by laparotomy, on February 14th, of this year.

The history of this case is, briefly, as follows:

Mrs. M., 27 years of age, married, two children, the youngest 16 months old, has been suffering with periodical attacks of severe abdominal pains for almost a year, for which she several times required medical treatment. During the five or six weeks preceding the operation these attacks increased in frequency and severity, making her unfit to do her ordinary household duties. Walking almost always produced a great deal of suffering. On January 26th, of this year, I was consulted for one of these attacks of pain, which was referred to the pelvic region, principally the left side. Making a vaginal examination, I found the uterus enlarged to the size almost of a two months' pregnancy, and to the left of this, in the region of the left tube, a soft, extremely tender mass, which was slightly movable. A careful bimanual examination could not be made on account of the very great sensitiveness of these parts. She had menstruated regularly every four weeks during the last eight or nine months, and was at this time still nursing her baby. At the two subsequent examinations I found no change in her condition, except, perhaps, that this tumor was slightly larger than before. The diagnosis was not quite clear, but I was inclined to the opinion that it was either a hydrosalpinx, or a pyosalpinx, more probably the latter. As her suffering at times had almost become unbearable, I advised laparotomy, to which she readily consented, but the operation was deferred until after her next menstrual period, which was now very close at hand. Menses lasted five days, and presented nothing unusual. In the afternnoon of the 13th of February, the day preceding the operation, she came to my office in a carriage, from her home, for the purpose of going to Mercy Hospital. On examination I found her condition unchanged; the mass, however, seemed now decidedly larger. The riding on the rough country road from her home did not seem to have caused her as much suffering as expected, and she was cheerful and feeling better than for several days previously. But on her way to the hospital the pains returned in unusual severity, and she arrived there faint and nearly collapsed. Several hypodermic injections of morphia made

her more comfortable, but she continued very sick and sore all night. On my morning visit, before the operation, she looked very pale, and was very feeble, still suffering considerable pain. Vaginal examination was not made.

On opening the peritoneal cavity dark blood escaped from the wound, and the abdomen was found containing a considerable quantity of blood, liquid and coagulated. In reaching down for the sac, on the left of the uterus, I felt a small rent in it, probably ½ inch long, which, however, in trying to bring it to the surface, was enlarged, so that all its contents escaped into the abdominal cavity. The bleeding was now very free, the blood being bright red, and easily distinguishable from the old dark blood already contained in the abdomen. The sac was now tied off, and the clots contained within the pelvic cavity turned out. After washing out the abdomen with hot distilled water it was closed, leaving, however, a glass drainage tube. Blood continued to discharge from this tube for three days, when it was removed.

The patient rallied very nicely from the operation, and made an uninterrupted recovery, her temperature and pulse remaining perfectly normal after the fourth day. She left the hospital on the 21st day, and is now in good health.

Rupture of the tube must have taken place on her way to or at the hospital, probably as a consequence of the jolting of the carriage. This evidently was the cause of the faintness and slight collapse after her arrival at the hospital the evening before the operation.

Comparing the histories of the two cases operated on by me, we find the first case an almost typical one of ectopic pregnancy, and one of comparatively easy diagnosis to one at all familiar with this interesting anomaly, while the second case is as atypical as possible, in which I claim a diagnosis to have been entirely impossible, for there was not the slightest reason to even suspect a pregnancy, as the patient had been menstruating regularly, her last catamenial period terminating just a few days before the operation, and she was still nursing her baby at the time she came under observation.

This case illustrates again the great difficulties in diagnosing extra-uterine pregnancy, and I cannot agree with Hanks, when he states that the diagnosis can be made in at least 95 per cent. of cases. The case also demonstrates that this interesting affection is by no means such a very rare condition as some seem to suppose, as this is the second case occurring in my own practice within the period of four months. That this was a case of tubal pregnancy there could be very little doubt, but in order to be perfectly certain I sent the specimen to Dr. Wm. H. Welch, of Johns Hopkins University, Baltimore, for examination, and he verified the diagnosis. The specimen, he states, consists of an ovary, part of a Fallopian tube, the intervening broad ligament, the fœtal membrane and a placenta with umbilical cord.

REPORTS FROM HOSPITALS.

SURGICAL CLINICS AT THE WESTERN PENNSYLVANIA HOSPITAL BEFORE THE STUDENTS OF THE WESTERN PENNSYLVANIA MEDICAL COLLEGE.

BY PROFESSOR J. B. MURDOCH,

SURGEON TO THE WESTERN PENNSYLVANIA HOSPITAL AND PROFESSOR OF CLINICAL SURGERY IN THE WESTERN PENNSYLVANIA MEDICAL COLLEGE.

[Reported by WILL. N. PRINGLE, M.D., a member of the Graduating Class.]

November 24, 1888.

As we are now studying the subject of fractures I embrace every opportunity to illustrate the different fractures of the bones of the human body to you.

FRACTURE OF THE LEFT LEG AND RIGHT THIGH.

The man we show you now is a railroad employé; yesterday while standing on a carload of gravel that was being pushed ahead of the engine, he suddenly became aware that the car was off the track; he signaled the engineer and endeavored to get the train stopped, but before he could do so the car went over an embankment, throwing him and the dirt down the hill. Just before going over the bank, however, he jumped, alighting on his toes, he says. He has sustained a fracture of the left leg and right thigh, and has a wound over the right patella. Whether he received these injuries from jumping, or from being thrown, he does not know; they were at all events probably caused by indirect violence. As he lies before you the first thing you will notice is that his right leg is everted. You also see some swelling. By measuring I find a little shortening of the right leg. He is unable to raise his heel from the table, and as I manipulate the limb I find a false point of motion about the middle of the thigh, so we have nearly all the symptoms of fracture of femur in history of the accident, deformity, swelling, pain, loss of function, false point of motion, but we have no crepitus. This is absent, possibly because the ends of the bone have overlapped or slipped past each other. This is often the case. We have abundant symptoms, however, on which to base a diagnosis of fracture, even if we do not elicit crepitus. We have made strong extension, but failed to bring the two ends together, but for all that it does not follow that they cannot be brought together, for although we may have ap-

plied extension to the amount of a hundred pounds and failed, still by *continuous application* of only eight or ten pounds for thirty-six or forty-eight hours, we may bring these fractured extremities into exact apposition. We do not, however, as a general thing, in a man of this age, expect so good a result as we would in a child, but are usually satisfied if we get strong union with a little shortening. This right leg was dressed with weight and pulley, and Hamilton's splint, which extends from the axilla to the sole of the foot, with a small piece extending out at right angles about six inches from the side of the splint; this is to prevent evertion, or rolling out, or rotatory deformity of the limb. By a bandage around the upper end of the splint and around the body of the patient he is prevented from rising, thus securing quiet and rest. The left leg you see is also broken below the knee, and by the amount of motion we know that both bones are broken. Here, too, we are able to secure almost all of the symptoms of fracture, including crepitus. Shortening, however, is absent, but when both limbs are fractured we have no fixed point from which to calculate, hence shortening becomes of no value as a symptom in this form of fracture. Over the spine of the tibia you see quite a large bleb. Where you find these you must expect to find a low state of vitality and an impaired nutrition; and you must be very careful about applying tight dressings or bandages, or you will surely have gangrene in the extremity of the limb. A question might arise in regard to the treatment of these blebs. Some surgeons recommend that they be opened at once. I never open them. I think that the cuticle heals better under the epidermis than it would do if it were opened and evacuated. My usual mode of treating fractures of this kind will be practiced in this case. The leg will be kept in the fracture box for a week or ten days, and then a plaster dressing put on.

A COMPOUND FRACTURE.

I will next show you the compound fracture which you saw us dress two weeks ago. We have failed to get these fragments to unite, and have been unable to bring them into apposition; there is either a tendon, muscle or piece of bone in the wound preventing union. I propose, to-day, to cut down on these fragments and saw off the ends of the broken fragments, bring them into close apposition and wire them together. Then by diet, regimen and good constitutional treatment generally, we hope to get union and repair here. You see the bone protruding through the skin, and entirely denuded of periosteum; this I will saw off. I have tried so often to impress upon you the dangers from compound fractures as compared with simple fractures, that I say now, that if you are ever able, by the use of lint soaked in compound tincture of benzoin, collodion or in the patient's blood, to convert a compound into a simple fracture, you have saved your patient much suffering and loss of time, and perhaps his life. But you will often meet with cases like this where you will have trouble in doing this, and you will also meet with other cases in which you will fail entirely.

In all operations on bones I think it a good plan to use an Esmarch bandage. I think it is more useful to the surgeon in these cases even than it is in amputations, but in compound fractures and in injuries where the vitality is low I never like to use it. I am always afraid to do anything that might interfere with the blood vessels leading to the part, and for that reason I would rather lose a little blood than to risk injury to the already devitalized vessels that must carry the material for the repair of the wound. By removing the fractured ends of this tibia I have been able to bring them into apposition, and now, for fear of having bowing of the limb, I will saw out a short section from the fibula. The limb will now be dressed in the usual way, and we will hope for the best for this man, although his limb is by no means yet saved.

December 1, 1888.

FRACTURE OF THE VERTEBRÆ.

The first case I will bring before you to-day is one of those cases of which we see too many in this hospital every year, namely, fracture of one or more of the vertebræ. These cases are, in my mind, the most melancholy of all the cases we have to witness, and they appeal to the sympathy of every man of any feeling at all. If they were crushed and killed outright they would not, it seems to me, present half so sad a picture as they do in cases like this, with the lower part of the body practically dead and the upper part alive and well. They lie on their back, usually, until large bed sores form on their body and they die of exhaustion. This man was a coal miner, and while at his work in the mine, two or three weeks ago, a quantity of slate fell on him, crushing him to the ground and fracturing the vertebræ in the lower dorsal or upper lumbar region. This is the manner in which a great many of these injuries happen. This man also received at the same time a fracture of both bones of the leg three inches below the knee. These injuries of the spinal cord are somewhat allied to injuries of the brain, in so far as paralysis is concerned, although we do not have loss of consciousness, delirium and many of the other symptoms of compression of the brain. He has complete paralysis in his lower extremities, with incontinence of urine and fæces. In cases of this kind there is usually, for the first day or two, retention, followed by incontinence of urine. This was the case in this man. He has all the power in his

upper extremities he has ever had, he can roll his head about, flourish his hands and arms in the air, and almost raise himself to the sitting posture, but he is as powerless to raise a foot from the bed as though his two legs were separated from his body. He is also unable to feel me pinch his legs or prick him with a pin. He has paralysis of both motion and sensation. As we turn the man over you see two large bed sores almost covering his entire buttocks, which have formed in the short space of three weeks. When you have a patient that you know must lie in bed for a long time, much benefit may be derived from washing the parts with alcohol every day. Some recommend alum water. This may be done before the ulcers form, but after the ulcers have formed the best thing you can do is to cover them with moleskin plasters or chamois leather, which may be spread with Peruvian balsam.

Now, while these kind of cases almost unvariably die, there are exceptions to the rule. There was a man in the wards here about a year ago with just such a fracture as this, except that the deformity was more marked, and he had neither paralysis of motion or sensation, and in three weeks we put a plaster jacket on him and he soon after left the hospital alive and well. The only explanation in this case was that, although there was considerable deformity, it was not in the direction to make pressure on the cord. There are various treatments for these fractures, one of which is by extension and counter-extension, and this I think would have been good treatment in this man's case had it been resorted to early enough. Another mode of treatment is that of cutting down on the vertebræ and elevating the fractured portions, much the same as you would trephine the skull for pressure on the brain.

TREATMENT OF COLD ABSCESSES.

We have another case to show you to-day, a man with two swellings on his back. His family history is of the best. About one year ago he received a blow on his back over the site of the upper swelling, and eight months ago he had pneumonia, for which his physician painted his back with some substance, after which these swellings appeared. He had them aspirated and a pint of pus withdrawn. After this they again filled up, and I can now readily detect fluctuation, and as I press firmly on the upper swelling the fluid is all pressed out and distends the lower tumor, and I can then press it from the lower back into the upper tumor, so you see they communicate with each other. This is known as a cold abscess, and the contents of a cold abscess differ somewhat from the contents of an acute abscess, that from the latter being thicker in consistency, or creamy and more like normal pus, while that from the chronic form is more fluid or liquefied. In children this matter is likely to form near the vertebral column, and following the course of the psoas muscle point in the groin. A very superior manner of treatment of cold abscess, in my mind, is that invented by a German surgeon, namely, to evacuate the abscess thoroughly, by means of the aspirator or trocar and canula, then inject into it an ethereal solution of iodoform. The ether evaporates, or diffuses, through the cavity, carrying the iodoform into every pocket, sinus and crevice in the cavity, thus acting as a most thorough antiseptic. This is the treatment I propose to give this case. In passing the trocar I select the most dependent point, because it is here that I am most certain to empty the cavity most thoroughly. This is a good rule to which there are many exceptions, however. In many abscesses you would have to go through a great mass of tissue, in order to open it at the lowest point. In these cases I would advise you to open at the thinnest point, or at the point where nature would, unaided, have made an opening. I will inject two ounces of the ethereal solution of iodoform into this cavity. It will then be left undisturbed for a few days, unless the temperature goes up, or other indications present themselves, showing that all is not doing well. If the temperature goes above 100° I will at once open the entire cavity freely, scrape it out with a Volkman spoon and drain it thoroughly, and treat it as an acute abscess.

MEDICAL PROGRESS.

DIFFUSE CALCIFICATION OF THE LIVER.—At the meeting of the Pathological Society of London on April 16, MR. TARGETT showed a specimen of diffuse calcification of the liver, which was removed from a man æt. 62, who died in the Exeter Hospital. It was presented to Guy's Hospital Museum by Dr. Davy. There had been a tumor in the epigastric region for seventeen years, which was very hard but not tender, and did not interfere with his work as a farm laborer. Four months before death he developed an empyema on the right side, for which he was treated in the hospital. At that time the abdomen presented a swelling of stony hardness in the epigastric region, which moved with respiration, and appeared connected with the liver. There was no ascites, but the veins over the upper part of the abdomen and the lower part of the chest were enlarged and varicose. There was no jaundice until two days before death, which resulted from facial erysipelas. The clinical report was very incomplete, and the condition of urine was not mentioned; but at the post-mortem examination the kidneys looked normal, though much enlarged. The spleen was

four or five times its usual size. The liver was firmly adherent to all the surrounding parts; after removal it weighed 66 ozs. The left lobe was very much enlarged, and was the cause of the epigastric swelling. The capsule was much thickened, and the substance of the liver so hard that it had to be sawn into sections. The greater portion of the organ was then found to be replaced by fibrous tissue, which was infiltrated with calcareous deposits, composed of carbonate and phosphate of lime and a large proportion of organic matter, but did not contain cholesterin or bile acids. Microscopic examination of the least affected parts of the liver showed changes like those of monolobular cirrhosis, and there were many groups of small round cells in the strands of fibrous tissue. One striking point was the amount of new tissue in the centre of the lobules spreading out between the rows of liver cells. The other parts of the liver were decalcified and examined, but they showed little more than fibroid tissue. There was no caseation; no gummata or evidence of parasites could be found. He considered that the thickening of the capsule, together with the amount of fibrous tissue in the interior of the organ, were suggestive of the primary change being syphilitic, but there was none of the cicatricial contraction so commonly found in old syphilitic livers. The clinical history did not mention syphilis or alcoholism. The specimen was referred to the Morbid Growths Committee. — *The Lancet*, April 20, 1889.

INTRACELLULAR DIGESTION.—(*Annales de l' Institut Pasteur*, 1889, No. 1.) As most protozoa and phagocytes, because of their smallness, are not well adapted for a microscopical observation of the course of intracellular digestion, Metschnikoff made his observations first on myxomycetæ. The amœboid character of these organisms, their ability to receive carmine-granules, spores, etc., has already been proven by de Bary. The existence of a pepsin-like ferment in æthalium septicum has been established by Krakenberg, and later on by Reinke and Grenwood. To be sure, it seems to be effective only in acid solutions, and for that reason—according to the two last-named authors—is of no benefit to the myxomycetæ themselves. Further difficulties in observing the myxomycetæ exists because of the constant movements of their protoplasm, and because sometimes the granules already taken up are thrown out again, etc. Nevertheless Metschnikoff succeeded in observing in plasmodium physarum a paling and all stages of solution of cells from the red sclerotium (of phlebeomorpha rufa). The granules of blue litmus powder intermingled with various plasmodii were not only taken up by the latter, but showed also, after a certain time, a decided rose coloring. If a volatile alkali was added or pressure with the cover-glass was made, the blue color of the litmus-granules reappeared. Many of these granules were enclosed in smaller or larger vacuoli filled with a reddish, clear fluid; others seemed to be directly surrounded by the protoplasma.

Metschnikoff infers from these observations that the plasmodium of the myxomycetæ, although having an alkaline reaction, can produce an acid-uous juice with a pepsin-like property to digest albuminous substances. Moreover, Metschnikoff convinced himself that digestion in acid media is not limited to myxomycetæ among lower organisms. The vacuoli fluid of stylochnia has a decidedly acid reaction on litmus; as has also that of vorticella convallaria, and Le Dantec recently established the same fact for the nutritive vacuoli of stentor polymorphus. There are also instances of digestive juices having neutral reaction in lower organisms; the author mentions several of these. But the main fact is this: that, in general, the method of digestion must be considered as diastatic.

Finally, the author made similar observations, which are not yet finished, upon the phagocytes of the higher animals. The tail of a larva of triton tæniatus was cut off and the surface of the wound rubbed with litmus powder. In a portion of the immigrated leucocytes the granules were subsequently found to be light-red. In osteoclasta Roustizky described, in 1874, an acid reaction of the cellular contents. There are many phagocytes in which no chemical reaction was found.—*Centralblatt für Bakteriologie und Parasitenkunde*, 1889, No. 15.

ON A PERMANENTLY SLOW PULSE AND ITS THERAPEUTIC INDICATIONS.—M. HUCHARD has repeatedly had occasion to observe and treat patients who presented the symptom known as a permanently slow pulse. He is convinced that this symptom originates, in a majority of cases, from a sclerosis of the arteries and in consequence of a genuine bulbar ischæmia.

Often one cannot count more than from 28 to 30 beats a minute. Frequently the symptom is accompanied by dizziness, and even by epileptic attacks or attacks of syncope. Rarely the slow pulse occurs alone as a single symptom, but it is generally accompanied by attacks of varying character, all originating from sclerosis of the arteries. There are, in most cases, symptoms of cardiac accidents, and M. Huchard has been able to establish the fact that syncope is preceded by a characteristic retrosternal pressure, or even by angina pectoris. Slow pulse is often accompanied by various disorders related, like the latter, to sclerosis of the arteries; one may therefore, in watching the patients, see them become finally afflicted with cardiac troubles or with Bright's disease. Huchard thinks, however, that the name "permanent slow pulse" is defective, for the symptom is often only temporary; he would prefer to call

it "Stokes-Adams' disease," after the first authors who perfectly described these symptoms.

Not less interesting are the therapeutic conclusions. M. Huchard had an opportunity to observe a patient in whom the administration of sulphate of quinine, a vaso-constrictor, produced deplorable results. It is necessary to employ vaso-dilators, because we have to do with symptoms of bulbar ischæmia. This is the principal indication for the treatment. The iodide of potassium or of sodium may be resorted to, but M. Huchard prefers "trinitrine," which, like nitrite of amyl, is a congestant of the nervous centres. Of this he administers once or twice a day 3 drops of an alcoholic solution, 1:100; he makes use also of hypodermic injections, for which he employs the following formula: Water = 10 gr.; alcoholic solution of trinitrine 1:100 = 40 drops. One gram, or one Pravaz syringeful, contains 4 drops of trinitrine solution; one may make, therefore, from twice to four times a day, injections with ¼ of a syringeful.

From a therapeutic standpoint the degree of arterial tension must, therefore, be taken into consideration, which—though difficult to measure—can be estimated perhaps by an auscultation of the heart alone, with an accuracy sufficient for clinical purposes. If there is discovered at the aortic opening a diastolic accentuation of the second murmur, it may be safely supposed there exists an arterial hypertension; on the other hand, when there is lower tension, the second sound of the pulmonary orifice will be intensified. These indications are of great therapeutic importance. In the first period of arterial sclerosis of the heart, when the pressure in the arteries is too great, recourse must be had to vaso-dilators. When, on the other hand, the action of the heart becomes more feeble and the tension in the arteries diminishes, vaso-constrictors, and especially caffeine, should be used.—*La Semaine Médicale*, 1889, No. 14.

Antipyrin in the Treatment of Diabetes.—A. Robin sums up the advantages of antipyrin in diabetes, according to his experience, as follows:

1. It may be employed from the outset in the treatment of diabetes where a glycosuria or acute polyuria is to be reduced without delay.

2. It allows of a suspension of the diet in patients who dislike the latter, without their losing the benefit of the previous restriction.

3. It is indicated when the diet, long continued and well tolerated, has produced its greatest effect in reducing the glycosuria and polyuria.

4. A wise combination of diet and antipyrin, associated in a sort of alternating manner, appears to be the best treatment for diabetes.

5. It is not necessary to continue the use of the drug if it does not produce an immediate and considerable diminution of the glycosuria.

6. One of the best ways of judging the effects of antipyrin is not only to ascertain every day the quantity of sugar in the urine, but also to measure daily the quantity of urine and its density. The action of antipyrin is favorable in the proportion in which the quantity diminishes and the density is reduced, or at least the latter should remain stationary. But if, with the quantity of urine diminishing, its density tends to increase, the use of antipyrin should be stopped immediately and permanently.

7. Albuminuria does not constitute an absolute contraindication. Its presence simply involves a question of its dose and of the duration of its use.

8. Finally, loss of appetite, emaciation, a sensation of weakness, pallor, oppression, swelling of the eyelids, or a sensation of tension in the face, are symptoms demonstrating, where they appear, that the use of the antipyrin is more harmful than useful, even if the glycosuria should be influenced favorably.—*La Semaine Médicale*, 1889, No. 15.

Ammoniacal Fermentation of Urine.—The subject of ammoniacal fermentation of urine has recently been studied by Drs. A. Russo-Giliberti and G. Dotto in the Pathological Institute of Palermo, and they have published a note in the new monthly journal, *La Sicilia Medica*, concerning it. The discovery of Pasteur and Van Tiegheim, that in the alkaline fermentation of urine the transformation of urea into ammonia carbonate is correlative with the development of an organized vegetable ferment—the micrococcus ureæ—has now lost its original importance owing to the researches of Miquel and others, which have proved that this transformation is also brought about by the action of other microörganisms. Miquel describes as a factor in ammoniacal fermentation of urine a bacillus ureæ, very slender and mobile, occurring either alone or in groups of from two to four, which can transform urea into carbonate of ammonia almost as efficiently as the micrococcus ureæ; also an aspergillus, the action of which is less prompt. Leube's researches show other bacteria with the same capacity. He describes a sarcina and three species of bacilli, very different to the bacillus ureæ of Miquel, possessing the power of hydrating urea. In Flügge's Institute a micrococcus was obtained from fermented urine which also produces energetic fermentation of urea. It is distinct from Pasteur's, and as it liquefies gelatine it has received the name of micrococcus ureæ liquefaciens. Heraeus obtained four bacilli capable of producing hydration of urea; three liquefied gelatine, and were quite distinct from those described by Leube. It is thus seen that the micrococcus ureæ is not the only microörganism possessing this property. Warrington also, making further researches, found that the bacillus fluorescens had the power of trans-

forming urea into ammonia carbonate, and that certain species of bacteria do not possess that property. More recently, Drs. Russo-Giliberti and Dotto have made experiments with the penicillium glaucum, etc. They made a 2 per cent. solution of pure urea and poured 100 cubic centimetres of it into sterilized tubes; they then sterilized the solution according to Tyndall's method, keeping the tubes one hour a day, for seven days, at a temperature of 65° to 70° C.; one of the tubes was tested by the contents being added to water, which was then distilled and sterilized, no ammonia, nitric acid, nitrous acid or carbonic acid being found. In order to prove the absence of germs, the tubes were kept for ten days in the hot chamber at a temperature varying from 25° to 30° C. In one tube in which penicillium glaucum had been sown there was found an abundance of ammonia carbonate from the transformation of the urea. Consequently, this microbe must be added to the number of those which are capable of causing ammoniacal fermentation of urea.—*The Lancet*, April 20, 1889.

THE VALUE OF SULPHONAL IN THE INSOMNIA OF THE PSYCHOSES, though just now lauded by our German *confrères* and much employed by them, is not in our opinion the equal of chloral, especially if judiciously combined with a suitable bromide salt, like the bromide of ammonium or potassium. Occasionally a patient has returned to us after a trip abroad, and the almost invariable sulphonal prescription in case insomnia followed them there or overtook them while in Germany, and we have been better satisfied with the more complete night's rest and next day's mental tranquility and refreshment that followed the chloral than with that which succeeded the sulphonal. Nevertheless Dr. A. Cramer (*Berlin Klin. Wochenschr.*, 1888, No. 34,) has made experiments in his asylum on forty-five different patients suffering from melancholia, mania, paralysis, paranoia and hebephrenia, in all four hundred and seven experiments. In 92 per cent. sulphonal produced a sleep lasting five hours or longer; it came on in from one-quarter to one hour after the medicine was administered. The dose varied from 30 to 90 grains. The remedy appeared to act harmlessly and drowsiness did not persist long, save in exceptional instances after the patient awakened. The medicine was given at night, usually the most proper time, we may here remark, for the giving of a hypnotic draught.—*Alienist and Neurologist*, April, 1889.

IRRIGATION OF THE STOMACH IN VERY YOUNG CHILDREN.—FAUCHER, who is the inventor of a tube for irrigation of the stomach, has applied it to children of the first period of life. This operation has long been practiced in Germany upon children, and with good success. Irrigation of the stomach may be accomplished with the newborn almost as readily as with adults by the aid of a tube and funnel of suitable dimensions. The infant should be held with the head forward, so as to admit of the ready exit of matter which may flow back into the pharynx, the arms being secured under a napkin, which is tied around the neck. The author entirely disapproves of the plan of Ebstein, in keeping the child in the dorsal position while this operation is being performed. A case is narrated in which a child presented grave symptoms of gastro-intestinal disorder twenty-seven days after birth. The author washed out his stomach three times the first and the second days, and twice on the third day, the result being that the vomiting was soon arrested. The period of digestion, which at first lasted four hours, was gradually shortened, the child became quieter, the evacuations became regular, and a normal condition supervened. No medicine was given.—*Le Concours*, Dec. 15, 1888.

OSTEOTOMY FOR ANTERIOR CURVATURES OF THE LEG.—DR. DE FOREST WILLARD closes an interesting paper in the *Medical and Surgical Reporter* with the following conclusions: 1. Anterior tibial curves, during the soft and springy stages, may be corrected by manual rectification and the use of apparatus. 2. Braces are useless after hardening has occurred. 3. Manual fracture is the best and safest remedial operation in young children. 4. Instrumental fracture, or osteoclasis, is not as safe or effective as osteotomy. 5. Aseptic simple osteotomy, for all moderate degrees of curves, and cuneiform section for very severe grades, give almost uniformly good and speedy results, without suppuration. Subcutaneous operation by the saw is also a reliable operation. 6. Plaster of Paris is the simplest and most effective material for securing accurate position and maintaining absolute fixation.—*Gaillard's Medical Journal*, May, 1889.

ON THE PATHOGENIC ACTION OF MICROBES FOUND IN THE URINE OF ECLAMPTICS.—Two years ago E. BLANC made an investigation of this subject. Two rabbits were inoculated, one under the meninges, the other in the veins, with microbes isolated from the urine of an eclamptic patient. The former died with convulsions; the second had infectious nephritis. This year he repeated the experiments on rabbits, guinea-pigs, dogs and rats. The results justify the conclusion that there is in eclamptics a class of pathogenic microbes capable of producing convulsions, especially in pregnant female animals, as also special local symptoms.—*La Semaine Médicale*, 1889, No. 14.

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SATURDAY, MAY 18, 1889.

ELECTRICITY IN GYNECOLOGY.

The above was the title of a paper read at the recent meeting of the Alabama Medical Association, by DR. W. E. B. DAVIS, of Birmingham. He believes that ultra-enthusiam has led to frequent failure in the use of this remedy, but says there should be no question as to its importance as a therapeutic agent in gynecological practice when such men as Apostoli, the Keiths, Engelmann and other competent observers, who have had experience in its application, report most satisfactory results.

He advises the use of the current of the Edison circuit, direct from the dynamo, when it can be had, and thereby avoid the annoyances and inconveniences of a battery. Portable batteries have proved very disappointing for the administration of high intensities, and his work has been confined principally to office practice. Great stress is laid on the importance of the application of the faradic current in sub-involution of the uterus, and every woman who has had an abortion or is confined at full term, is placed on ergot, and should there be incomplete involution at the expiration of six weeks, he begins at once the use of the faradic current, with the bi-polar, intra-uterine excitor of Apostoli, and repeats the application every second or third day until the organ has returned to its normal size, "which can always be counted on with mathematical certainty." He does not recommend the use of the current immediately after every abortion or delivery as practiced by Apostoli, since this treatment could not or would not be afforded, except by a very small class, unless it were certain that the uterus would not return to its proper size. For this reason ergot is prescribed by him in every case, as stated, since he thinks it acts very much as faradization on the smooth, non-striated muscular fibre of the uterus, although not by any means so prompt, energetic and reliable. All cases are examined at the expiration of six weeks to ascertain whether involution has been complete.

Cases are reported to show the value of the faradic current in sub-ivolution of the uterus, and to illustrate its efficacy in displacements due to the enlarged, hyperæmic condition of the uterus following parturition. The current of tension—the current from the long, fine wire—has proven a valuable agent for the relief of pain, and cases showing permanent relief were quoted.

The currents of quantity and tension have been used with very satisfactory results as indicated by Apostoli, but recently he has used the current of tension not only for pain, but to stimulate relaxed and enfeebled muscle fibre. The current of tension is borne better by the patient, and he has been unable to recognize the superior results of the current of quantity on muscle over the current of tension. In displacements of the uterus he supports the organ with wool tampons, and does not object to any form of pessary, properly fitted, in connection with the treatment by electricity. He believes that proper support of the organ, combined with the proper application of electricity, to be the most rational treatment for this condition.

When the uterus is enlarged not from subinvolution, but *hyperplasia*, he regards the continuous current is indicated. He says all cases of chronic endometritis are amenable to galvanism[1]—the positive current when there is much leucorrhœa or profuse menstruation, and the negative in other cases. From 75 to 150 milliampères are used twice weekly, for five minutes at a time. He does not say that electricity will do away entirely with such surgical procedures as shortening the round ligaments—Alexander's operation—or attaching the cornua of the organ to the abdominal wall, or the narrowing of the vagina by the many methods at present in vogue, but insists that many cases can be relieved by this method of treatment

[1] Apostoli. Chronic Metritis, etc.

which would otherwise be condemned to the knife.

He says the local application of the faradic current is capable of relieving many cases of amenorrhœa due to atrophy of the uterus. In menorrhagia, due to relaxation of muscle, to engorgement, when patient menstruates from eight to nine days, after a few applications the menstrual periods would only last from four to five days. The positive galvanic current is the remedy indicated for hæmorrhage due to a disease of the endometrium, and is the current usually indicated for hæmorrhage. Women often become pregnant soon after being treated by electricity, and it is unquestionably a valuable remedy for sterility due to nervous causes, so ably described by Dr. Campbell.

Neuralgic dysmenorrhœa and dysmenorrhœa in women of a hysterical temperament—whom the slightest excitement or worry will cause to suffer greatly—those cases where there is no apparent pathological lesion—he has succeeded, as with no other remedy, by the application of the current of tension or by the mild positive galvanic current. The negative current is indicated when the pain is due to mechanical causes in the cervical canal, and when there are inflammatory deposits around the ovaries, etc.

He said the subject which had concerned the profession most in connection with the use of electricity was *the treatment of fibroid tumors*, and the results of the treatment in the hands of Apostoli, the Keiths, Engelmann, Lapthorn Smith and others, had demonstrated that this is *the treatment* for fibroid tumors which "offer probabilities of healthy retrograde metamorphosis."—Engelmann.

He had followed Apostoli's instructions in this class of neoplasms, and believed that the majority of cases could be symptomatically cured. Certainly Apostoli's treatment should be tried before resorting to hysterectomy.

HOT WATER IN ABDOMINAL SECTION.

At the recent meeting of the California State Medical Society, DR. BEVERLY MCMONAGLE, Chairman of the Committee on Gynecology, read an interesting report on Pelvic Abscess and its Treatment by Abdominal Section. He mentioned one case in which "slight salivation followed the washing out of the abdominal cavity with a solution of bichloride 1:10,000." Since that occurrence he had used instead of antiseptic solutions in the abdominal cavity, pure water at a temperature varying from 110° to 120° F., but which had been thoroughly boiled. In the discussion that followed the reading of the report, Dr. H. W. Smith, of Placerville, said he had done some work in abdominal surgery; "and in using a 1:1,000 sublimate solution he had seen slight salivation follow. Since then he had used boiled water, and his cases had done much better than with either carbolic acid or corrosive sublimate."[1]

Dr. E. A. Follansbee, of Los Angeles, agreed with Drs. McMonagle and Smith, saying that she had used the boiled water in her operations for about three years, and had found it reliable and much safer.

We have recently noticed reports of several laparotomies having been performed by different persons successfully without the use of any antiseptic solutions, using instead only hot water. And it is well known that Dr. Bantock, of London, uses only hot water in all his operations, discarding antiseptic solutions entirely, both for instruments and for perfectly cleansing wounds and cavities. Yet our London letter, in THE JOURNAL of April 20, 1889, says, concerning Dr. Bantock, "his results are unsurpassed." If the proper use of hot water is thus capable of yielding results that are not surpassed by any antiseptic solution, in the practice of abdominal and pelvic surgery, it certainly has the advantages of being cheap, ready at hand and entirely safe.

A NEEDED PRESCRIPTION.

The intensity with which Americans apply themselves to business is everywhere proverbial. Gigantic corporations, manufacturing and commercial industries, and business demands of every sort, lay upon men burdens too heavy to be borne. As a result, vast numbers succumb prematurely and seek medical advice as to the best means for relief. Absolute *rest* is the obvious necessity, and so the mountain air, the sea-side resort, or the ocean voyage, is the thing enjoined. The advice was timely and wise, and the results are usually highly satisfactory.

Now it often happens that the very same advice which the doctor gives to his patients should be

[1] See Occidental Medical Times, May, 1889.

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followed by himself. From labors so imperative and so exacting, duty to himself, to his family, and to his patients, often requires that a physician shall religiously set aside a brief portion of each year that he may turn aside and rest awile. The prescription which THE JOURNAL proffers to its patrons is more particularly applicable to the practitioners in the Mississippi Valley and the regions which lie beyond. It is as follows:

Leave home this year early in June, spend a week among the lovely New England mountains, and instead of an ocean voyage, and the undesirable sea-sickness incident thereto, seek a sea-side resort for one full week in one of the oldest and most lovely New England towns, and while in attendance upon the Annual Meeting of the American Medical Association the recuperated physician will not soon forget the pleasure and the benefits of another week's sojourn at NEWPORT-BY-THE-SEA.

EDITORIAL NOTES.

NEW MEDICAL JOURNAL.—*The Kansas Medical Journal*, a monthly periodical of thirty-two pages, has made its appearance on our table. It makes a good appearance both in its typographical execution and in the character of its contents. It is published at Topeka, Kansas, and edited by a committee consisting of Dr. W. L. Schenck, Osage City, and Drs. G. E. Minney and S. G. Stewart of Topeka, Kansas.

DR. HARVEY LINDSLEY, of Washington, D. C., died April, 28, 1889, at the advanced age of 85 years. He was one of the founders of the Medical Society of the District of Columbia; a Professor in the National Medical College several years; and was elected President of the American Medical Association at its first annual meeting, in Washington, in 1858.

PROPOSED CHANGES IN THE CONSTITUTION OF THE ILLINOIS STATE MEDICAL SOCIETY.—We have just received a copy of *The Peoria Medical Journal* for April, containing an abstract of the changes proposed in the Constitution of this State Society, by a Committee appointed at the annual meeting of 1888. Several of the propositions presented by the Committee should receive the careful consideration of the members before deciding in favor of their adoption. The proposition to change the *time* of the annual meetings from the *third* to the *first* Tuesday in May, is particularly objectionable, as that is the same day that nearly all the meetings of the American Medical Association have been held when the *place* has been south of the line of New York and Chicago. There should be a full attendance from all parts of the State.

ASSOCIATION NEWS.

American Medical Association. Fortieth Annual Meeting.

Section on Laryngology and Otology.

In addition to the list published May 4th the Secretary has received promises of papers from the following gentlemen. Seven of these have given only conditional promises, but it will be seen that the Section has secured absolute promises of forty papers, and promises of eleven more, most of which we may reasonably expect will be forthcoming. The Secretary desires specially to urge those who have been in any doubt about their ability to write, to make a special effort for this first meeting of the Section. The large number of papers secured must not be taken as an excuse for not writing, but each and every one should remember that his pledge may be the main reason with several physicians for making a long and expensive trip to the meeting of the Association.

The officers of this Section again urge their personal friends to make an extra effort to help them at this time.

The following names complete the list of those from whom we expect papers: J. E. Schadle, J. L. Thompson, J. H. Bryan, W. Frendenthal, Chas. Stover Allen, Frank H. Potter, J. W. Gleitsman, Louis Jurist, J. B. Lippincott, H. A. Johnson, Robert Levy, Joseph A. White, C. W. Johnson, J. D. Arnold, F. S. Crossfield, W. K. Simpson, Wm. Porter, D. N. Rankin, J. H. Bryan, Jonathan Wright, Arthur Duncan, E. R. Lewis, Max Thorner, H. Clinton McSherry, F. I. Knight, J. Solis-Cohen, J. C. Mulhall, W. E. Casselberry, S. J. Radcliff.

E. FLETCHER INGALS, M.D., Secretary,
70 State St., Chicago.

W. H. DALY, M.D., President.

Section on State Medicine.

The following additional papers have been received:

"Bacteriological Examination of Several Native Mineral Waters in the Bottled State." Dr. George Minges, Dubuque, Iowa.

"Climatological Characteristics of Salt Lake City." Dr. F. S. Bascom, Utah.

SOCIETY PROCEEDINGS.

Obstetrical Society of Philadelphia.

Thursday, April 4, 1889.

THE VICE-PRESIDENT, W. H. H. GITHENS, M.D., IN THE CHAIR.

DR. G. E. SHOEMAKER described an improvised waterproof drainage-pad for operations.

The only point of the arrangement here described is that it may be improvised in any household, even the poorest; and it is not intended that it shall take the place of the excellent device so widely advertised by an instrument-maker, except in emergencies. It happens to every one, however, to be called upon to do various minor operations when out of the reach of all formal apparatus, and in a number of cases where it was desirable to use water freely without wetting the bed or the patient, the writer has obtained the greatest comfort and satisfaction by the following means:

The necessary material, which can be had anywhere, consists of a sheet or thin coverlet and a piece of rubber cloth or table oil-cloth.

The sheet is folded twice, and then made into a tight roll about three or four feet long to form the rim. This roll, laid near the edge of the bed or table, is bent in the form of letter O, with a six-inch opening on one side of the O, the ends of the roll at this opening being fastened by safety-pins strongly to the edge of the mattress or the cover on the table.

When the rubber cloth is thrown loosely over this, a basin is formed which is open at the edge of the bed, and fluids readily find their way into a vessel on the floor to which the rubber cloth leads. Even a prolonged perinæum operation, under constant irrigation, may be accomplished without any disarrangement or leakage. The same arrangement will be found to be of great assistance to patients in that troublesome procedure, the daily hot-water douche.

This may, of course, be called only an adaptation of the idea in the advertised pad before referred to. It may also be called a modification of the waterproof sheet which every woman has used on her bed since the deluge. The only object here is to call attention to the fact that we can, any of us, by simply making a curved ridge in this sheet, and paying some regard to the ordinary laws of hydrostatics, make for ourselves in five minutes a very great convenience, and save our patients and their attendants a good deal of trouble and annoyance.

DR. W. S. STEWART narrated the removal of a large, adherent, degenerated, parovarian cyst:

A young lady, æt. 24 years, was brought to our hospital from New Jersey, by her physician, for examination and such treatment as should be determined on. I found in the left iliac region a hard mass, which, at first examination, seemed to be solid; but a more careful examination with the finger in Douglas' cul-de-sac, with palpation from above, revealed some fluctuation. On moving the uterus, the mass was found to be adherent to that organ, causing some doubt as to whether or not it was a true ovarian trouble. In consultation with my *confrère*, Dr. Montgomery, it was decided to remove the tumor, as from the history it evidently caused much suffering, with rather increased pain, distress, and irregular menstruation, and was developing more or less rapidly.

Two days later the patient was put on the table, and she almost died from the ether before the operation began. I was kindly assisted by the resident Dr. Hughes, chief of clinic, Dr. West and Dr. Dorman. On reaching the upper portion of the tumor, I found it adherent to the omentum, to the small bowel, to the walls of the abdomen, to the uterus, and to every part with which it was approximated. It was also deeply seated in the pelvis. On introducing the trocar, I found that the tumor was filled with pus. The liquid degenerated, and we had a pent-up septic fluid in an almost aseptic condition. I rapidly removed the disintegrated sac from the parts to which it was attached, working as rapidly as possible, for the patient seemed to be going to die every moment. Not finding any pedicle, I was obliged to dissect the sac off as carefully as possible, and was delayed some time in getting it off. Considerable oozing, but no special bleeding, occurred. I found the adhesions to the uterus so firm that it was impossible to separate the sac, and if I had used a knife, considerable time would probably have been required in ligating the vessels. I therefore transfixed the side of the uterus with a ligature, and tied both above and below, and clipped off the margin as close as possible without affecting the ligature. Where the sac penetrated deeply into the tissues of the pelvis, I ligated as closely as possible and clipped off the remaining portion of the sac. The pus escaped considerably through the pelvis, and I thoroughly irrigated with pure warm water and stitched up the wound, leaving a drainage-tube in position. The patient was returned to her room with a temperature of 96°, almost moribund. Under the use of restoratives, hot bottles, hot applications, and a hot room, she soon regained her normal temperature, and made a speedy recovery without an untoward symptom. The stitches were removed on the eighth day, and the drainage-tube allowed to remain until the ninth day. The present prospects are, that the patient will entirely recover, and is now (third week) going about her room in the hospital.

As bearing on the cause of this trouble, I would say that I have learned that she lived on a

farm, and that four years ago she took the part of a man in the harvest-field. Her work was pitching the sheaves from a platform in the barn up into a higher portion of the mow. Not having the strength to use the long-handled fork, she put her elbow down on the affected side, and with this as a fulcrum, and the other hand as a pry, she threw the sheaves up. In this way, possibly, she injured herself. This is a suggestion worth knowing, as a possible cause for this development. At this time she was wearing corsets, and this would confine everything, so that the pressure of the elbow caused an additional strain or possible contusion.

DR. M. PRICE: One point that I have noticed in regard to these pus tumors is, that the danger of the operation does not seem to be increased by the fact that they are filled with pus. The patient referred to had probably been in a septic condition at the time of operation, and the moment that the tumor was removed and thorough drainage instituted, her chances probably were as good, if not better, than in a case of simple tumor not in a sloughing condition. I have never seen a tumor filled with pus give any trouble after removal. So far as I know the patients have always done well.

DR. J. M. BALDY: I must disagree with Dr. Price. It seems to me that the presence of pus and of a septic condition would considerably increase the risks of operation. In the removal of a cyst in which there had been no septic trouble, and before suppuration had taken place, the woman would be in good condition, and probably have suffered from no symptoms, save, perhaps, those of slight enlargement. In a case of that kind the risks would be small. Where a woman becomes septic from whatever cause, the risks are seriously increased.

In regard to the cause suggested, I think that there is no very good basis for assuming that this had any effect. I do not think that the pitching of sheaves and the pressure of the elbow would cause the development of such a tumor. This might have been an incidental exciting cause, but that it was the primary exciting cause we have not sufficient ground for believing. Many women develop tumors without having any severe labor of that kind. On the other hand, I have seen women who have performed such labor daily, to the severity of which I can personally testify, and never develop anything like ovarian trouble. The wholesome exercise of working in the field would, in a healthy woman, predispose rather to good health than to disease.

DR. M. PRICE: It is a well-established fact in surgery that a recent injury in a previous healthy individual requiring a surgical operation is more dangerous than where the operation is for an old injury. The chances of the second patient would be a hundred-fold better. I had my limb broken. A healthier boy never lived, and for six weeks it was a struggle for life. A year later I had the limb amputated, and I can testify that I have suffered more from the extraction of a tooth than from that operation. If the limb had been operated on at the time of the injury, I should probably have died. I was not used to suffering. There had been no preparation. I do not pretend to say that the presence of pus gave the patient a better chance, but the suffering prepared her for a surgical procedure which, in her case, would be more successful than it would be in a case of simple tumor with adhesions. In uncomplicated ovarian tumor, the operation is one of the simplest in surgery. The case reported was probably one of intra-ligamentous cyst, or perhaps a twisted pedicle. If the operation had been performed before pus appeared, with these strong, unchanged adhesions, her chances would not have been so great as after sloughing had taken place, and degeneration of the adhesions had begun. There was less hæmorrhage and less shock. The patient had been prepared for what had to be done.

DR. W. L. TAYLOR: I would agree with Dr. Baldy that the removal of a sloughing cyst would cause greater risk to the patient than the removal of a simple ovarian tumor. A patient with a sloughing cyst is necessarily suffering from septic trouble. She is weak and depressed, and her vital powers are lessened. In an ovarian cyst the vital forces are in a good condition for operation. This is the only point to which I would refer, as I did not hear the paper.

DR. STEWART: I think that both Dr. Baldy and Dr. Price may be right. Where the septic condition has not reduced the patients to such an extent as to preclude their recovery, they often resist shock and recover rapidly. The shock is less severe than in an operation in a patient in vigorous health. I can understand this, and have seen it in some cases. In my case the patient scarcely survived the operation; but when the effects of the shock had passed off, her recovery did not seem to be influenced whatever.

DR. J. HOFFMAN read the following:

CRANIOTOMY FOR A CASE OF HYDROCEPHALUS.

with a discussion of the Technique of the Operation, together with a Consideration of the Conditions that demand it.

At midnight of Dec. 23, 1888, I was called by a midwife to see a woman. She was unable to deliver, after, as I afterwards found out, continual effort for four hours. I found the woman much worn out by her pains, which were ineffectual, though her pulse and condition were, all in all, good. Examination showed a large head, well engaged, lying transverse in the pelvis, the occiput to the left.

I at once put on the Poullet forceps but though

they were accurately applied, was unabled to rotate the head, the forceps finally slipping. After a great deal of difficulty, I again succeeded in applying them, with like result, slipping on traction. A third effort to apply them was only successful after placing the woman on her side. Traction, was, however, no more successful than before. I then desisted from further efforts at delivery, two hours having elapsed, and brought Dr. Joseph Price in consultation. Dr. Price, after a great deal of trouble, succeded in applying the Tarnier traction forceps, with no better success, however, than had followed the use of the Poullet instrument. From the constant slipping of his forceps, Dr. Price suspected a hydrocephalic head, and so expressed himself. I, on the contrary, thought otherwise, as the bones while not so firm and resisting as usual, did not seem to be sufficiently flacid to indicate dydrocephalus, at least to me. Events, however, proved the correctness of Dr. Price's suspicion, or rather diagnosis; for there being no heart sounds when the head was perforated, the rush of water left no doubt as to the true condition. The instruments used were those presented to-night, as they already have been before. They consist of a crushing forceps, which, from its pelvic curve, is as readily introduced and applied as the ordinary forceps. The non-fenestrated blades afford the safety of a speculum for perforation, and leave no manipulation necessary after that part of the operation has been performed. All considering this subject seem to take for granted that the crushing instrument in all craniotomy procedures must be applied after perforation. This, it seems to me, supplies one of the greatest dangers of the operation, and conduces to an unnecessary fatality. The preapplication of the crushing instrument not only protects the maternal soft parts from the danger of injury by the perforator, but also a more exact adjustment, by a gradually applied force as the head is reduced and its contents evacuated by the perforator. The ease of application of this instrument can be appreciated by any one familiar with the ordinary forceps.

The point of this perforator Dr. Price has intended to be protected by the buckskin finger, and the skull pierced through it This is, however, not really necessary, as the speculum afforded by the crushing blades, together with that afforded by the introducing finger, makes the leather unnecessary.

The combination of instruments afforded in this craniotomy set seems to leave nothing further to be desired, even if further destruction of the fœtus is necessary, than the mere reduction of the head. For the consideration of the conditions which demand this operation, there is at present, perhaps, a greater necessity than the mere statement of its technique with any set of instruments whatever. Many of our recent writers apparently desire to condemn it in all cases whatsoever upon the living fœtus without exception. As a type of these may be taken the views of Dr. Busey, in the *American Journal of Obstetrics*, January, 1889. These writers, of which Dr. Busey may be taken as a type, fail to appreciate the fact that we need go back no further than Hodge to find that in cases where the short diameter of the pelvis is two inches or under, the Cæsarean operation is to be preferred, as affording a better prospect for the mother, while having the strong recommendation of affording a good prospect of safety to the child; this, too, before the improved Cæsarean operation was devised. These writers seem, too, to fail to appreciate that long ago as the writer referred to, to go no further back, the early performance of the Cæsarean section was specifically stated as justifying strong hopes for "the salvation of both mother and child." It is not the purpose of this paper to discuss the relative merits of the Cæsarian section and craniotomy, nor the comparative values of the mother's and the infant's life. It is not possible to avoid, nevertheless, the observation that those writers who unhesitatingly apply the statistical method at arriving at conclusions relative to these in favor of the first operation, seemingly forget that the dangers of craniotomy almost entirely lie within the limits already admitted into the domain of legitimate Cæsarian section, and that outside of these cases the danger to the mother is almost absolutely nothing, as admitted by Lusk in his late discussion. They seem, too, to consider that craniotomy, to be successful, must be done by the expert, and that the Cæsarian section is the safer, no matter by whom performed. To this we submit a positive disagreement, though even Dr. Tait has gone so far as to say in effect that the removal of the pregnant uterus is a simple operation, Dr. Busey refers to the "dream of Tyler Smith, as to the abolition of craniotomy from the obstetric practice."

When we consider the paper of Tyler Smith, to which reference is made, we can readily understand how opportune was the plea. The table of cases therein quoted from cases in "British Practice," affording excuse for craniotomy, state twenty-five indications for its performance, among which are, to wit: arm or shoulder presentations, rupture of the uterus, face presentations, bands or cicatrices in the vagina, placenta prævia, rigidity of the perinæum, occipito-posterior presentations, etc. "With such 'indications' as these there was need of a voice crying in the wilderness."

The point to be here considered is whether the decrial of the abuse of any operation necessarily implies that there is never any requirement or justification of such operation. We think not. No one will dispute that where there is danger

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to the mother in the performance of craniotomy, the conservative operation of Cæsarian section should be performed. On the other hand, where there is no danger to the mother whatever, I consider it questionable whether any obstetrician here present would subject his own wife to the danger of a capital operation in order to save the life of the child. Secondly, in cases where such deformity as hydrocephalus or spina-bifida is discovered, I do not believe that the life of the child should be considered as compared with the mother's in the danger of the Cæsarian section, providing that the pelvic contraction be not so great as to bring craniotomy farther beyond the danger line than the Cæsarian operation.

The application of the same principle in the case of monsters needs no discussion.

The woman recovered without a bad symptom.

DR. STEWART: I would say a word in regard to this case of hydrocephalus. I have had two or three such cases and have had no difficulty in delivering after penetrating the skull and allowing the water to escape. I consider this an ingenious instrument, but I have used the old-fashioned perforator, cutting both ways. After introducing the blades and separating them you have a free escape of the liquid. The skull then collapses and there is no further difficulty. You can deliver then with any forceps. Such has been my experience.

DR. DANIEL LONGAKER: I have not used this instrument of Dr. Price, but I can readily see that in a certain class of cases, *e. g.*, hydrocephalus, it would be excellent. I desire, however, to say, that in craniotomy, and especially in cases of marked deformity of the pelvis I haved used with the most marked satisfaction the cranioclast of Braun, and the perforator of Blot. I do not see how in ordinarily careful and skillful hands any injury can be done with this perforator. The trepan is certainly a safe instrument.

DR. J. PRICE: I have discussed this matter on several occasions, but the remarks of Dr. Longaker invite me to say something. The application of the instruments mentioned is difficult. When closed they occupy one inch of pelvic space. Much damage is often done, and the mortality in craniotomy has been largely due to injury of the maternal soft parts by this instrument. In one case the sacrum was trephined with the instrument alluded to. Hodge long ago called attention to the use of the ordinary forceps as a compressor. This instrument is made on the same principle, and the strength is in the handles. You can crush anything with this instrument. Anyone who can apply forceps can apply this instrument in any pelvis where the forceps can be applied. It can be applied in a pelvis with a diameter of one and a half inches. I have seen it successfully applied by beginners in the case of dead children without doing any mischief. The instrument is used first as a speculum, second for fixation, and third for compression.

DR. LONGAKER: It is only necessary to refer to my own experience with cranioclasis, and to confirm my favorable opinion of the operation. I will refer to a paper which can be found in the *American Journal of Obstetrics*, I think, for December, 1884. Cases by the fifties and hundreds are reported without a fatal result. This is a proof of the safety of cranioclasis, which I consider the better operation where there is a high degree of pelvic deformity.

DR. J. PRICE presented specimens with remarks:

I desire first to present two fresh specimens. One was very unique, removed day before yesterday,—a case of double pus-tubes and double ovarian abscess, with pus in the cellular tissue. The ovaries were cheesy shells, and they both ruptured in the removal. The pavilions were entirely gone. There was no hesitation on the part of those present in regard to the character of the fluid. It was pus. Much has been said in regard to the character of the fluid from this locality. If such liquid was removed from other parts of the body there would be no question in regard to its character. I open one of these tubes before you, and I trust that you will examine the the fluid carefully.

This is a typical case of ovarian cyst, no larger than an egg, with no semblance of the pavilion. This contained fluid; but I do not claim that it was pus. The cyst was strongly adherent, and I had to shell it out.

Here is an enormous ovarian abscess, unquestionably due to gonorrhœa.

You will find that the most of these tubes have been cut through, and a stick inserted. Most of them on removal were as large as the uterus. All of the patients were great sufferers. I am sometimes asked what becomes of the patients who refuse operation. In five of these cases I had urged section from a few months to several years previously.

This specimen is from a woman to whom I urged operation five years ago. It is an enormous dermoid cyst, encapsuled by omentum. It looked like a hopeless case, but she made a good recovery.

Here are two small ovarian cysts, in which it would have been easy to guess at the diagnosis of extra-uterine pregnancy. Here are typical pus-tubes, and you can bear in mind that the character of the fluid in these cases was that of the tubes before you.

I have here a group of four or five small cysts, the removal of which I consider important. These patients suffered severe pain. These occurred in young women who were able to definitely locate the seat of the pain. One of these small cysts developed in a recently married woman

19 or 20 years of age. She saw me three days ago, three months after the operation, and states that she has missed the last two periods.

This small tumor was removed by Dr. Müller, of Germantown. The ovary is healthy, and you see a very pretty parovarian cyst. The woman made a speedy recovery.

I have here two extra-uterine pregnancies. The placenta and clot in one is seen in the tube, and can be removed. This is unquestionably an extra-uterine pregnancy. In the other the placenta is inside. The specimen has been examined by Dr. Piersol and Dr. Meigs, and they state that it is undoubtedly extra-uterine pregnancy. This is a hydrosalpinx of the opposite side of the first case. Here you have a beautiful illustration of the existence of double disease. On one side desquamative salpingitis, hydrosalpinx, and pustubes, and on the other side extra-uterine pregnancy. The second case was an example of double tubal pregnancy, and both tubes had ruptured. This woman lived after the uterus had been curetted twice, and iodine had been injected after the second operation. The bleeding continued, and until the abdomen became distended, it was not deemed necessary to do anything further.

I desire to say that four of these operations followed Emmet's operation for laceration of the cervix. If there exists any tubal disease, this is a dangerous procedure. Some one has remarked that Emmet has gone back on his operation. He has uttered a word of caution because of the mortality in the hands of some of his followers. Many of the cases come back to him. Where there has been tubal disease, many deaths have occurred, and many patients are invalids. I do not condemn the operation. I know it to be valuable in well-selected cases, when you can exclude the existence of tubal diseases.

DR. M. PRICE: Here again comes up the question of the preparation of the patient by the leakage that has been going on in the pus cases. I have seen at least fifty pus cases in the last two years. Very rarely is it that you can deliver the tube without some leakage and perhaps rupture. These cases have recovered and do better than some simple cases. Our nurses always prefer a pus case where a drainage-tube has been used. Where a patient is poisoned and dying, no one makes any claim that there is any advantage; but where inflammatory changes have been going on for a long time, there is, unquestionably, a preparation. I have never seen but one case of pus in the pelvis die. That case died from starvation from the nurse drinking the milk. These cases recover if the enucleation has been done with care, and irrigation and drainage properly performed.

DR. HOFFMAN: In regard to the gonorrhœal origin of these troubles, I would say that two weeks ago I had a child two weeks old brought to me with sore eyes. I applied nitrate of silver, and gave explicit directions as to treatment. In three days the child lost its sight. I found that the mother had gonorrhœa of the most virulent form. I also found ovarian and tubal trouble very marked on one side. She had been married only a short time and previously had known no trouble. There seems to be a connection between the inflammation of the child's eyes, the gonorrhœal discharge from the vagina of the mother, and the trouble in the pelvis.

DR. J. M. BALDY: I do not care to say anything in regard to pus-tubes, because my views have been often expressed. I would again take exception to the view of the preparation of the patient by sepsis. It is true that in many surgical injuries better results are secured where the operation is done some time subsequently than when it is done at once. This is not because of septic infection, Shock is here a great element. This brings up the old theory that it was better to allow ovarian tumors to reach a large size, in order that the peritoneum might be prepared, etc. We have long since given this up, and we shall quickly have to give up the idea that the patient is prepared for operation by being septically infected.

Dr. Hoffman has referred to the connection between inflammation of the child's eyes and gonorrhœa in the woman. Individual cases do not go for much. The fact that the child has inflamed eyes does not indicate positively the existence of gonorrhœa. The nurse's hands being contaminated by the septic lochial discharges may infect the child's eyes.

In discussing this matter in the Pathological Society the other night, the president stated that he had seen unquestionable gonorrhœal pus-tubes removed from a single woman. On inquiry, however, he admitted that the woman had had two criminal abortions a short time before. This was probably the cause of the inflammatory trouble, and this is the history of many of these cases. I protest against the view that assigns gonorrhœa as the cause of all of these cases. It is a dangerous teaching for ourselves as a profession, and it is dangerous teaching to the laity. If we teach the laity that all these cases, or most of them, are of gonorrhœal origin, we shall cause an unlimited degree of marital unhappiness throughout the country, and shall cause irreparable family troubles. We certainly have to have better and more scientific ground than mere clinical histories before we can accept this extreme view. Dr. Hoffman, in a recent discussion, cited the statistics of Bernutz and Goupil as a proof of this view. Out of ninety-nine cases, about forty-six were of gonorrhœal origin, and these were in the lowest class of women. Even by these picked statistics, and amongst this low class, over half

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were of septic origin, and many of the supposed gonorrhœal ones I would be inclined to dispute. I must adhere to my opinion, that by all odds septic infection is the most common cause.

DR. M. PRICE: The report referred to was from Charity Lying-in-Hospital, with a record of fifty per cent. gonorrhœa. The remainder are attributed to sepsis and wounds during labor.

DR. W. H. PARISH: I would endorse what has been said as to the inadvisability of operating for lacerated cervix where there is disease of the tubes and ovaries. We know that salpingitis is often an extension from the endometrium, often gonorrhœal, sometimes septic. Thorough drainage is important, not only in the treatment of the endometritis, but also in the palliative treatment of the endo-salpingitis. By narrowing the uterine canal, we prevent the free escape of pus and other fluids, and aggravate the trouble. I consider it unwise and not safe to operate on these cases. Within the past week I was called to operate on a lacerated crevix. I had not seen the patient for twelve months. After etherization, I found evidence of tubal disease on one side and declined to operate on the cervix.

DR. J. PRICE: In regard to this question of percentage I agree largely with Dr. Baldy. He admits this evening what he did not admit in the discussion at the County Medical Society—that these cases are largely due to gonorrhœa. Criminal abortions, cold, and exposure are other common causes of such mischief. Mr. Tait, and many others, are operating on a simpler class of cases than we are. Operating to save lives has been the course of many Philadelphia operators. In all of the cases reported the operation was done to save life.

The operation should be rapid, every detail should be shortened. The ligature should be the finest possible. Large plaited ligatures are not absorbed, and are at the bottom of many sinuses. The ligature should be applied at the root of the tube. Complete delivery of the tube and ovary, tying at a good surgical neck; then thorough irrigation, with careful closure and perfect drainage. There are two things in which my convictions are as firmly fixed as in anything in medicine; and that is, first, the value of irrigation, and, second, the value of drainage.

Gynæcological Society of Chicago.

Regular Meeting, Friday, Dec. 21, 1888.

THE PRESIDENT, CHARLES T. PARKES, M.D., IN THE CHAIR.

DR. W. W. JAGGARD read the following note, entitled,

TWO OBSERVATIONS OF TYPHOID FEVER DURING PREGNANCY.

I report the two examples of typhoid fever during pregnancy, both on account of the intrinsic interest of the case, as well as to bring out the experience of others with this complication. Typhoid fever is of very frequent occurrence in Chicago, and the Fellows that have resided in the city for a considerable period can doubtless supply important facts that bear upon the reciprocal relations of this disease and pregnancy.

This note may be regarded as in a measure supplemental to the excellent discussion of typhoid fever, recently held before the Chicago Medical Society, at the suggestion of its President, and our distinguished Fellow, Dr. J. H. Etheridge.

Observation No. 1.—This case was observed and described by my friend, Dr. William M. Findley, of Altoona, Pa.

Mrs. M. H. Y., aged 24 years, Irish extraction, whose husband had been ill some six weeks with typhoid fever, was, after the initial prodromata, taken down with well-marked typhoid fever, May 7, 1873. Temperature and pulse ranging high in evening, with epistaxis and diarrhœa early. The case would not have attracted unusual attention except for the fact that she was pregnant, and her labor was anticipated on the 10th of May, 1873. She, however, was not taken in labor until the 15th of May. On the evening of the 14th of May I was called about 9 P.M., after my regular visits for the day, and found her condition as follows: Temperature 103°, pulse 140, respirations 36, with marked bronchial irritation and secretion—having had six characteristic stools during the day in spite of remedies—and the contractions of the uterus quite strong and regular, os dilated to half-dollar piece size and dilating. The heart being very feeble, and jactitation marked, with exhaustion coming on rapidly, I gave her, *ad libitum*, best port wine and brandy, so that in the four or five hours of labor she took about a quart of brandy, and about as much more port wine, with no other effect than to keep her in the same condition as I had left her before labor came on. In due time the labor was terminated, contraction was perfect, once the product of conception was expelled completely, and no untoward results followed. Although during labor her bowels were moved copiously some six or eight times, after labor the bowel trouble seemed to subside greatly, and she passed on to convalescence in some three weeks without marked irregularities, as in an ordinary case of uncomplicated typhoid fever. The secretion of milk was entirely suppressed, the mammary glands never showing any signs of activity during her illness.

The condition of the child, however, was remarkable. The entire cuticle or epidermis was shrivelled and creased as though it had been macerated in hot water, and in a day or two it was covered with bullous spots from head to foot, vesicular first, then pustular. As the boy was

healthy in other respects, in the course of a week or ten days the eruption, under emollients, was well, and the cuticle becoming detached was replaced by healthy skin tissue and the baby was well, except that as a young man he carries the cicatrices of some of the bullæ.

Observation No. 2.—This case came under my own observation. From the history of the case, written by Dr. B. L. Riese, I make the following extracts:

Mrs. A. McG., 23 years old, married June 17, 1888. Last menstruation June 10, 1888. Morning sickness six weeks after marriage. Husband and wife taken sick with typhoid fever about the 28th of August; both admitted to Mercy Hospital September 4th. Husband died a few days later of a malignant type of the disease. In the case of the wife the disease pursued a typical course lasting about three weeks; maximum temperature, 103.4 F.; maximum pulse, 130. October 1st, several days after the subsidence of the fever, severe pains referred to the hypogastric region, hæmorrhage from the vagina. After irrigation of the vagina, indagation revealed the vaginal portion softened and the ovum presenting through the cervical canal. Plan of treatment, expectant, in the absence of serious hæmorrhage or symptoms of sepsis. October 3d, escape of liquor amnii; on examination, fœtus protruding through the os externum; removal of the fœtus, placenta and membranes by bimanual manipulation under aseptic conditions.

The patient made an uninterrupted recovery. The ovum corresponded to the fourteenth week. (Presented for inspection.) The apparent cause of abortion in this case was hæmorrhage into the decidua serotina and placenta fetalis. The extravasation occurred before the removal of the product of conception. This fact is evident from the characters of the clot, as large as an English walnut, and firmly imbedded within the placental tissue. The presence of hæmorrhagic endometritis may be inferred from the character of the decidua vera and chorion læve.

With reference to the mutually unfavorable relations of typhoid fever and pregnancy, experience teaches that pregnancy confers upon the individual no immunity from typhoid fever. Upon the other hand, the course of this disease is commonly modified unfavorably, and the fever in turn exercises a distinctly prejudicial influence upon the course of gestation. The tendency to the interruption of pregnancy is more marked than in any of the acute infectious diseases, with the possible exceptions of small-pox and cholera. In about two-thirds of the cases collected by Kaminski, Zülzer, Scanzoni, and others, pregnancy was prematurely interrupted.

The chief causes of abortion or premature labor are to be found:

1. In the elevation of maternal temperature causing death of the fœtus by isolation, or its premature expulsion by thermic irritation of the uterine musculature.

2. In the almost constant hæmorrhagic endometritis, illustrated by the specimen presented.

3. In the depression of the maternal blood-pressure with asphyxiation of the child.

4. Until within a recent period the transmission of the infection through the placenta from the mother to the child has been regarded as possible, but not demonstrable. Lately, however, Widal and Chautemesse have detected the bacillus, alleged to be characteristic of typhoid fever, in the blood of a fœtus corresponding to the fourth month.

The unfavorable influence of pregnancy upon typhoid fever lies especially in the tendency to abortion or premature labor at a time when the loss of blood and the muscular exertion necessary to effect the expulsion of the product of conception may precipitate the lethal issue from exhaustion. There is also increased risk of perforation.

DR. E. J. DOERING: I would like to have Dr. Jaggard tell us whether or no there are any statistics by American authors. I have had two cases, one last September, in which the fever lasted from three to four weeks, and in both of which pregnancy was not interrupted. One lady was in the sixth month of pregnancy, the other in the seventh month. The temperature in either did not exceed 104.5° F. It is my experience that these cases are liable to go through without interruption. Before the discussion is closed, it seems to me it would be well to have the experience of members present. They must have seen such cases, and I do not think we should let the subject go by without all the members stating their experience. In my last case I expected daily that the patient would miscarry, but to my surprise she went right along. That was quite a severe case. In the other case the fever did not go quite so high, but the last case was typical, and lasted fully four weeks. I not only thought she would miscarry, but had grave doubts as to her recovery. But to my surprise and pleasure she passed through safely, and returned to her home in Mobile some months later.

THE PRESIDENT: If my recollection serves me, I am satisfied I have seen several cases of pregnancy complicated with typhoid fever, and I am quite sure that every one of them miscarried where the pregnancy was early; in those in which the typhoid fever came on towards the later stages of pregnancy the patient not only miscarried, but lost her life as well. Of course I cannot now recall the exact number, nor the cases, but that is the recollection I have. It seems to me I have often heard doctors say that it is rather an impression among medical men, that if they have a case of typhoid fever in pregnancy it is likely to be followed by a miscarriage.

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DR. JOHN BARTLETT: I recollect but one case. That was many years ago, in which a woman pregnant about four months, and in the third week of typhoid fever, doing quite well, was taken in abortion. She went through the process of labor satisfactorily, but died the next day.

DR. BAYARD HOLMES: The transmission of the bacillus of typhoid fever through the placenta is a matter worthy of consideration. We know that in certain cases of anthrax the fœtus is not infected, although the mother's blood is full of the bacilli. After the birth of the living, healthy fœtus at term, a sufficient period follows for the incubation of the disease, and then appears anthrax; first in the umbilicus, then general symptoms of anthrax septicæmia. In other cases, however, the fœtus is infected with the anthrax *in utero*. In a paper that I presented to this Society some months ago, I held that the pyogenic infection of the fœtus through the placenta was a comparatively rare occurrence. Since that time I have paid considerable attention to that subject, and I conclude that my statement should be limited. All cases in which infection of the fœtus *in utero* has or has not taken place can be reconciled. In cases of sapremia with the presence of multiple known bacteria in the blood of the mother, those bacteria are all included in phagocytes. These phagocytes are sufficiently powerful to prevent the multiplication of the microbes, although they are not able to destroy them. This accounts for those typical cases of Bollinger, in which the fœtus was not infected, although the blood in different parts of the body of the mother sheep contained the anthrax bacillus. Whenever, on the other hand, the sapremia has advanced to the condition of septicæmia, and the phagocytes have been overcome, and multiplication of the bacteria takes place at their expense, then embolism occurs in the peripheral arteries, that is to say, in the uterine wall, and the multiplication of the microbe follows at that point in close proximity to the fœtal circulation. In this way they force themselves onward into the capillaries of the placenta, and the fœtus is infected. In relapsing fever, and all cases of septicæmia, the infection of the fœtus is the rule. Typhoid is a form of septicæmia, at least in the latter part of the first week. The symptoms of septicæmia are then present, viz.: capillary embolism in the skin forming hæmorrhagic spots, the characteristic rose spots of typhoid; ptomaine poisoning, which either raises or lowers the temperature; internal capillary embolism resulting in splenitis, pneumonitis, hepatitis, nephritis, and in cases of a pregnant patient, hæmorrhage in the distended capillaries of the decidua in close proximity to the placenta. At first it is simply a miliary hæmorrhage, but as the destruction of the capillary wall increases by coagulation necrosis, a considerable quantity of blood escapes between the placenta and the uterine wall, and contractions of the uterus are initiated which ultimately expel the contents of the womb.

The case which Dr. Jaggard reports from Pennsylvania seems to me to be one of acute pemphigus (Demme), and due to a secondary mixed infection of the mother, and not directly to the typhoid disease. Pemphigus is a relatively frequent form of secondary infection in children, but in the adult its manifestations are so trivial that a diagnosis is difficult. On this account the mother who was primarily infected seemed to escape, while the non-resisting child suffered the terrible disfigurement of the disease.

DR. JAGGARD, in closing the discussion, said he was unable to find in the literature of the subject any statistics from American sources that related to the items touched on in his communication.

The rôle that elevation of maternal temperature plays in the causation of death of the fœtus depends chiefly upon the rapidity with which the rise occurs, and the duration of the pyrexia. As pointed out by Doléris, Doré, Max Runge and others, if the elevation of maternal temperature occurs slowly, and if it be of brief duration, the fœtus commonly escapes injury.

FOREIGN CORRESPONDENCE.

LETTER FROM LONDON.

(FROM OUR REGULAR CORRESPONDENT.)

A new Penny a Week Collection Scheme in Connection with the Hospital Saturday Fund—Recent Small-pox Epidemic at Sheffield—Case of Fractured Spine—The Hot Water Cure—Prize of £100, and a Gold Medal for the Best Essay on the Etiology and Prevention of Yellow Fever—Street Ambulance Organization for London, etc.

A new penny a week collection scheme in connection with the Hospital Saturday Fund is about being inaugurated. The scheme is to raise 500,000 pence weekly (£100,000 annually) and thus remove the debt from the London hospitals. In the various hospitals in London at the present time there are 2,637 unoccupied beds and quite 2,000 would be occupied if the funds were forthcoming. The promotors of this new movement invite the assistance alike of employers and employed in collecting subscriptions, which will be purely voluntary and limited to one penny a week.

The recent severe epidemic of small-pox at Sheffield forms the subject of an exhaustive report to the Local Government Board by Dr. Barry, who has accumulated an enormous mass of facts dealing with every aspect of the outbreak, its origin, its spread through the town, and the

influence of vaccination in preventing its further spread. The full magnitude of the outbreak is attributed by Dr. Barry to the spread of infection from the small-pox hospital to which the earlier cases were sent. Twenty-three maps of the most populous portions of the town are annexed to the report. Around the fever hospitals a number of rings are drawn at intervals of 1,000 feet. In the first two maps the cases are scattered indiscriminately about the town, but at an early period they showed signs of congregating around the hospital. This tendency soon became very marked. The hospital was the centre, as it were of the epidemic. As the months wore on the infection spread steadily over a wider area, the cases moving outwards from the hospital like waves on the surface of a pond from the centre of disturbance. There is no possibility of doubt, after an inspection of these maps, that in some way or another this hospital, situated close to the work-house, and on the edge of a very populous district served as a focus of infection. A few sporadic cases were taken there, and served as the centre from which the actual epidemic spread. During fourteen weeks, from May 21, to August 27, while the hospital was in full operation, the proportion of infected houses within a radius of 4,000 feet was seven times that in other parts of the town. Within 1,000 feet of the hospital the proportion was three times as great as in the next zone between one and two thousand feet away. This again was three times as severely scourged as the next zone, between two and three thousand feet, while that had twice as large a share of infected houses as the outermost zone at a distance of from three to four thousand feet. Even this outside zone had a proportion of infection double that of the rest of the town. At subsequent periods the distribution altered in consequence of the outward spread of the infection. During February and March, 1888, the operations at the hospital were lessened owing to the removal of all acute cases to another hospital. The result was at once a rapid falling off in the number of cases within the hospital area. Dr. Barry's report appears to show that a small-pox hospital is quite out of place in the centre of a populous district, and is a very great source of danger to the population which it is intended to protect.

The statistics of the attacks on vaccinated and on unvaccinated persons are of the utmost interest and importance. Thus while among every thousand unvaccinated children below 10 years of age there were 101 cases with a death-rate of 44, there were only five cases in every thousand of vaccinated children and a death-rate of .09. The contrast was equally marked among the children actually living in houses invaded by the disease. Thus while the rate for vaccinated was 78 with a death-rate of one, that of the unvaccinated was 869 with a death rate of 381. Among older persons the contrast was not so great, but it was still decisive. The result may be shortly summed up by saying that a vaccinated child is 381 times less likely to die of small-pox than one who is unvaccinated, while among older people those once vaccinated were 51 times, and those twice vaccinated 640 times, less likely to a fatal attack of the disease than those who had never undergone the operation of vaccination.

Mr. Herbert Allingham lately had an interesting case of fractured spine under his care. The patient, æt. 31, was admitted into hospital having fallen 40 feet, causing a fracture. He was paralyzed from below the level of the ensiform cartilage. As he did not improve, in fact, seemed to lose ground, Mr. Allingham trephined the spine through an incision 10 inches long. It was seen that the lamina of the sixth vertebra was badly fractured and depressed. He therefore, with the bone forceps, snipped off the laminæ and spinous processes of the fifth, sixth and seventh vertebræ, exposing the cord for about 4 inches. The operation took an hour and a half and the wound was dressed antiseptically. Healing had taken place in about ten days, and the symptoms of ascending changes checked. Some amount of improvement subsequently took place, the level of the paralysis being brought down to the umbilicus. Mr. Allingham considers that by timely trephining inflammatory ascending changes are prevented, that no bad symptoms follow the laying open of the spinal dura mater, and that the operation, although tedious, was not difficult, and does not lessen the chance of recovery.

There is quite an enthusiam at present in London for the hot water cure. The victim of indigestion, eczema, headaches, palpitation, sleeplessness and other ills, imbibes a half-pint of very warm water night and morning, with finely minced beef for his food, and feels, it is said, restored to youthful vigor by the simple regimen. Many busy city men are stated to have received much benefit from the treatment.

A medical man near London has just met with a tragic death. His child was attacked with diphtheria and he found it necessary to perform tracheotomy, and it was in sucking the tube, which had become blocked, that Mr. C. I. Moore contracted the disease, which terminated fatally not only in his own case but in that of his child also.

The Parkes triennial prize of £100 and a gold medal for the best essay on the Etiology and Prevention of Yellow Fever, has just been awarded to Surgeon Firth of the Army Medical Staff. The subject for the next prize is "The Influence of Soil as a Factor in the Production of Disease, especially in Hot Climates." The competition is open to all medical officers of the army, navy and Indian services of executive rank on full pay.

A sufficient sum of money, £1,500 in all, has

been realized to cover the initial expenses and the cost of working for the first year of the excellent scheme of a street ambulance organization for London. The idea has been worked out by the Hospital Association, who have obtained a strong committee. It has been decided to invite the chief of the police and fire brigade to join the committee. Within two months it is hoped the system will be in working order.

Professor Virchow is stated to be busily engaged in rewriting his great work on Cellular Pathology. He expects to conclude his labors at a comparatively early date.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

The Relation of the Tubercle Bacillus to the Etiology of Phthisis—to the Early Diagnosis and Prognosis of Phthisis—The Specific Nature of Phthisis—The Influence of the Microbe Theory on the Treatment of Phthisis.

At the first meeting in May, of the Academy of Medicine, Dr. W. B. James read a paper on *The Relation of the Tubercle Bacillus to the Etiology of Phthisis.* The result of the enormous number of original investigations which had been carried on since the discovery of the bacillus, in 1882, he said, had been to confirm the correctness of Koch's conclusions. It was also fairly well established now that the tuberculous process is capable of setting up inflammatory action in adjacent tissues which may be either acute on chronic in character. By pulmonary phthisis he understood a tuberculous inflammation of the lungs, and he therefore considered any secondary and contributing cause or causes as unnecessary. Clinical experience taught that different individuals respond very differently to the tuberculous infection, and also that the same individual responds differently to it at different times. In this connection he referred to the results obtained by Dr. Trudeau from exposing animals inoculated with tuberculous virus to different kinds of environment. In the deadhouse of the New York Hospital, he said, he had been struck with the large number of individuals whose lungs presented lesions which showed that they had at one time been the subjects of phthisis and had recovered from it. Whether or not any previous lesion of the lungs was necessary for the development of tuberculosis he did not think was established. The sum of clinical experience seemed to indicate that tuberculosis develops more readily when there has been such a previous lesion; but that in many instances there is no previous lesion whatever. The conditions on which tuberculous infection in any given case appeared to depend were, first, the number of the germs, and, second, the condition of the germs. Other things being equal, therefore, the larger the number of bacilli and the greater the activity of the virus, the stronger would be the chance of infection. Having referred to the question of the channel of infection, he said, in summing up, that the only factor necessary for the production of pulmonary phthisis was the bacillus tuberculosis or its spores.

One of the most positive and terse communications of the evening was the paper of Dr. J. West Roosevelt, on *The Relation of the Tubercle Bacillus to the Early Diagnosis and Prognosis of Phthisis.* In opening he spoke of the difficulties in the way of diagnosis which many cases presented, the responsibility of the physician, and the irreparable injury which might be done to a young man's prospects in life by the enunciation of a wrong opinion. If the bacillus were found in the sputum, all doubts would, of course, be removed. But suppose we do not find the bacillus, he went on to say, can we assert that phthisis does not exist? Decidedly not. It must be remembered that in phthisis we often have no tubercle which is so situated as to be connected with the air-passages, and it is quite possible for extensive tuberculous deposit to occur, and yet no bacilli be discharged. It is also possible for so much bronchial discharge to exist that the bacillus may be overlooked in the large quantity of expectoration. No one would, therefore, deny the existence of phthisis because the bacillus could not be found. Even though very many careful examinations be made and no bacilli be discovered, this evidence against the diagnosis of phthisis is slight; though, of course, the presence of bacilli would render such a diagnosis positive.

As seen in New York, he said, there were a number of cases of phthisis in which the lesion, until near the end, seemed to consist of the deposit of tubercles beginning in the upper lobes and gradually spreading and involving the lower. There were also some pleurisy and some bronchitis. Now, in these cases there was not much tendency for the tubercles to break down early in the disease. There being practically no pulmonary consolidation (nothing at first but a few scattered tubercular nodules), the physical signs were of little value. It was possible for this form of phthisis to progress very far and yet give no distinctive signs. Unfortunately, for the reason that scattered tubercles constituted the lesion and that these did not break down early and empty their bacilli into the bronchial secretion, the detection of the bacilli was frequently impossible at the very time when this would be of most value.

In another form of phthisis, together with the tubercle deposit, we had pneumonia, coagulation necrosis, marked bronchitis, etc., and practically this form, owing to the pulmonary consolidation,

gave signs earlier than the others. It also broke down over a greater extent of the lungs, and bacilli were frequently and abundantly discharged. It might be said that those cases presenting the greatest difficulties for diagnosis, not regarding the bacillus, presented also the greatest difficulties in finding the bacillus. In many of them it was not to be found at all, and the diagnosis had to be made from the physical signs.

As to the prognostic value of the bacillus, he thought it could hardly be said to have any. Patients going rapidly down hill would be found whose expectoration contained but few bacilli, and, on the other hand, large numbers of these might be found in the sputum of those whose disease was advancing but slowly, if at all. It was simply a question of the freedom with which cheesy matter was emptied into the bronchi. Strangely enough, there was a decided tendency for many to regard the bacilli discharged as a measure of the disease; as if they, and not the bacilli growing in the patient, did the harm. Hence we read of "diminution in the number of the bacilli" under varied treatments as a symptom of improvement. It might or might not be such a symptom. At best it was a most delusive one.

Watching for it, and laying stress upon it, he believed had done one great harm. It had given a longer life to the various so-called antiseptic methods of treatment; the word antiseptic being, here used, of course, as meaning destruction to bacillary life. "A strong solution of carbolic acid kills bacilli after some hours; therefore give very small doses of that agent (doses so small as to be, when diluted with a bulk of fluid equal to that of the blood, entirely harmless to the microbes), and thus cure phthisis." This was the real basis of reasoning for all such treatment; and how often had we heard in regard to each of the new antiseptic methods that "the cough, expectorations, and night-sweats improved, and the bacilli were reduced in numbers." To this should usually be added: "The patient died." Now the fact that the bacilli vary greatly in numbers from time to time had added somewhat to the apparent value of many different kinds of treatment. The time has come, he thought, for a protest to be made against the administration of poisons to unfortunate people in the so-called antiseptic treatment of phthisis. To do this, and to call the methods by which the particular poisons had so far been chosen, "scientific," was possibly to injure the patient, but certainly to exhibit a peculiar idea of what constitutes science. He explained that he would not for a moment be understood as objecting to the trial of any non-injurious treatment for phthisis; but he certainly did wish to protest against the giving of antiseptics tested as now, and calling it rational. While the complex body-cells were easier to kill than the more simply constructed bacilli, it did not seem very encouraging to try to kill the latter and yet leave the former untouched. It was probable that nourishing the phagocytes was better than trying to kill the bacilli. It was possible that empirically something may be found capable of acting as a specific bacillary poison, but no evidence had yet presented that such a substance exists, nor was it likely to be obtained by the present crude methods.

Dr. Roosevelt's conclusions were as follows:

1. The bacillus tuberculosis is of great positive value, but no negative value, in diagnosis.

2. In prognosis the bacillus is of but little value.

3. In both diagnosis and prognosis quite as much depends upon the careful study of the case as a whole as if there were no bacilli concerned in the production of the disease, except that a diagnosis is sometimes rendered positive, which would otherwise be doubtful, by finding the bacillus.

Prof. James Tyson, of the University of Pennsylvania, who had been invited to take part in the discussion, dwelt for some time on the difficulties which had attended the indisputable establishment of the proposition that the bacillus is the essential and only cause of tuberculosis. He then went on to say that attention could now be directed most profitably to the corollaries which grew out of this causal relation, and that the first evident deduction was that tuberculosis must be contagious. The contagiousness was so comparatively slight, however, that some explanation seemed necessary, and this explanation, he thought, would be found in the mode of dissemination, as shown by some recent observations of Cornet. This observer inoculated animals with sponge-scrapings from the walls of rooms occupied by phthisical patients. Large numbers of animals thus inoculated were found to be tuberculous, while the control experiments, made with sponge-scrapings from houses not inhabited by tuberculous patients, gave negative results. In no case was the dust of the walls infectious where sputum-cups were exclusively used to receive the expectorated matter, although such sputum abounded in bacilli. We thus learned that it is through the dried sputum whose bacillus-containing particles are disseminated in the air that the disease is spread; as was, indeed, originally suggested by Koch. Tuberculosis might be characterized as feebly or slightly contagious in the same way and for the same reason that typhoid fever was slightly contagious; because ordinarily the excreta are promptly removed, even if not disinfected, and it is only when they dry upon the linen, and thence become scattered through the air, that they enter the lungs or alimentary canal.

The same conditions also which intensified the contagion of the diseases long acknowledged to be contagious increased the operation of that of

phthisis. Thus, for instance, the disease was most frequent where people were crowded together, as in prisons, etc. Married people infected each other, and the members of healthy families might become infected one after another after removal to a house previously occupied by a tuberculous patient. In the same direction he pointed out some most valuable and laborious observations by Dr. Lawrence L. Flick, of Philadelphia, illustrated by a series of maps locating every death from tuberculosis in a single ward for twenty-five years, in which he showed that of the infected houses scarcely 10 per cent. are isolated—that is, have not an infected house next to them. About 23 per cent. of the infected houses, moreover, had had more than one case. Finally, through diagrams showing the distribution of small-pox, typhoid fever, diphtheria and scarlet fever, he showed that the groupings of phthisis are identical with those of contagious diseases.

In referring to the subject of the communication of tuberculosis through the alimentary canal he stated that while the general expression of the Paris Congress for the Study of Tuberculosis, held in 1888, was against the use of tubercular flesh, and especially tubercular milk, no absolute demonstration of the harmful effects of meat from tuberculous cattle seems to have been presented. Cagny, however, related a case in which tuberculous disease was caused in chickens by eating the sputa of a phthisical patient. In like manner, Mosler had reported the case of a patient who swallowed his own sputum in large quantities. Ten days after his first attack of cough diarrhœa and colic set in, and ten days later he died. The autopsy revealed tuberculosis of the lungs and intestine, but nowhere else in the body; and hence Mosler was inclined to refer tuberculosis of the intestine to swallowed sputum rather than to general infection, although he failed to produce intestinal tuberculosis in animals by feeding them with tuberculous sputum and lung tubercle.

Having referred to the possible transmission of tuberculosis by flies, as indicated by the observations of Spellman, Haushalter, and E. H. Hoffman, Dr. Tyson went on to say that the relation of the bacillus to heredity had as yet failed of a satisfactory explanation, and more particularly as regards congenital tuberculosis. The most probable explanation of the latter, he thought, was that it is passed from the blood of the mother to that of the fœtus through the placenta. Such transfer, however, presupposed, of course, the presence of bacilli in the blood of the mother; and while Weichselbaum had succeeded in demonstrating tubercle bacilli in the blood, it had been very frequent. It had to be admitted, too, that although Landouzy and Martin have obtained positive results after the inoculation of animals with the placentæ of phthisical patients, no tubercle bacilli were found in the products; which might therefore have been pseudo-tuberculosis.

Another important corollary, he said, related to the tenacity of the life of the bacillus. Cadere and Mallet found that tuberculous matter, when dried and pulverized, is capable of transmitting tuberculosis 102 days after such preparation; but they concluded that virulence does not persist after from 30 to 70 days, unless special care is taken to preserve it. Schule and Fisher claimed that tuberculous matter may remain active at least six months, while Pietro asserted that well dried sputum may retain infectious properties for nine or ten months at a mean temperature of 77° F.

Dr. H. M. Biggs, of the Carnegie Laboratory, presented the spetific nature of phthisis in a very clear and forcible manner. No fact in medicine, with the possible exception of the essential cause of anthrax, he said, was better established than the causal relation of the bacillus of Koch to tuberculosis. The evidence, he believed, answered very nearly indeed to the exactness of mathematical demonstration, and it seemed to him that the profession could not too soon do away with the notion, held by many even yet, that heredity and other causes were prime factors in the etiology of phthisis. There was one, and only one cause, and that was the tubercle bacillus. That these other factors had an influence no one could deny, but the effect of the was simply to reduce the normal power of resistance in the tissues, In order that infection should result it was necessary that a dose of bacilli should be taken into the system and that these should have the effect of overcoming the tissue resistance. Depressed vitality from any cause and antecedent pathological processes existing in the lungs would naturally facilitate this action of the bacilli.

He considered that the tubercle bacilli are capable of causing the disease without the assistance of any other factor, provided that a sufficiently large number of them are admitted to the system. Heredity meant, then, he said, not the transmission of a predisposition to tuberculosis, but that tuberculous parents transmit to their offspring organs which are easily acted on by such agents as the tubercle bacillus; in other words, organs which have a less resisting power than those of robust individuals. In such organs there was simply an absence of strength, and not the positive possession of unfavorable qualities. If these points were accepted, he said it followed, first, that phthisis pulmonalis is distinctly contagious; and secondly, that it is a distinctly preventable disease.

The great question that lay before us, therefore, was the prevention of tuberculosis, and he thought that, in trying to solve this problem, we could not too strongly insist upon the origin of the disease from a single cause. In the work of prevention all discharges from tuberculous patients should be

disinfected, and all tuberculous animals should be destroyed; and we could only hope to carry out such a work by educating the profession and the public in this belief that the disease is due to a single cause. Whenever tuberculosis occurred in animal or man, the fact ought to be distinctly recognized that it was invariably the result of tubercular disease existing in some antecedent case.

Dr. H. P. Loomis followed Dr. Biggs, and in the course of his remarks he stated that he had found that in no less than 60 per cent. of all patients dying at Bellevue Hospital there were old tubercular changes in the lungs; the disease having been recovered from. After the meeting one of the physicians present remarked that if this statement were true it would be a great deal better if those suffering from tuberculosis should pay no attention to the disease and not seek medical advice, since statistics showed that of all tuberculous patients who came under treatment only 10 per cent. recovered.

Dr. Trudeau, of Saranac Lake, in the Adirondack Mountains, who exhibited some interesting specimens, stated that he had found it possible to produce in animals any kind of phthisis that was known in the human subject by properly regulating, first, the quantity of virus employed; second, the site of inoculation; and third, the environment of the animal. Acute miliary tuberculosis, for instance, could be caused by inoculating the vein of the ear. The animal would die of the infectious disease in about twenty-five days, and an examination would show the presence of tubercles everywhere in the body. By injecting the virus into the apex of the lung, a condition would be produced in which fibrous tissue would be found to predominate over the tubercular.

Dr. W. H. Thomson read a paper on *The Influence of the Microbe Theory on the Treatment of Phthisis*, in which he said that he had never expected any specific treatment to be of permanent value in phthisis on account of the organic nature of the tubercle bacillus. As illustrating this, he said he had never seen a case of small-pox, measles, or other specific disease that was shortened a single day by the administration of an antiseptic or any other agent whatever. He did not know of anything that the farmer could use that would kill the weeds, but not the potatoes, in his field; and in like manner we could not expect to find any agent that would kill the tubercle bacillus in the body, and yet not do injury.

But, at the same time, he thought that Koch's great discovery would not be barren of practical results. Having spoken of the apparent interdependence of bacterial growths upon each other, he referred to the wide prevalence of the streptococcus pyogenes, and said that it had seemed to him that this organism might perhaps pave the way, as it were, for the tubercle bacillus, which without its aid possibly would not find a suitable soil for its development. If this were so, he thought it was of the greatest importance, first, to check all suppurative processes in the lungs; second, to remove the pus; and third, to prevent putrefaction of pus. One of the best agents against suppuration was creosote, and it might be employed both internally and by inhalation. He related two cases of phthisis with well-marked cavities in which permanent recovery followed the use of creosote, and said that while he had, of course, met with many cases in which this remedy did no good, he believed that, on the whole, it was of more efficacy than any other. One important indication was to cause, as far as possible, a limitation of the tuberculous process by promoting the power of resistance in the tissues.

Dr. B. F. Westbrook, of Brooklyn, thought that as a rule a skillful examiner could make the diagnosis of phthisis in any case where the microscopist could do so by means of the sputum. In cases of pleurisy at the apex of the lung, however, where it was not known whether tuberculosis originally existed or not, he believed the examination of the sputum would often prove of diagnostic value. A few cases were also met with in which patients with weak chests have some crackling at the apex which may be due either to tuberculosis trouble or to emphysema; and here, too, he thought the presence or absence of the bacillus might be of considerable value. As to the matter of prognosis, if in any case repeated examinations failed to reveal the presence of bacilli in the sputum, he said he would conclude that there was no tuberculosis present, and that the trouble was probably due to chronic interstitial pneumonia. The mere numerical quantity of bacilli found in any case was, in his opinion, of no value.

As regards the matter of treatment, he believed that the only influence which the discovery of Koch had thus far had upon this was pernicious, since it had resulted in the introduction of all sorts of mischievous methods. There could be no specific treatment unless we could discover a specific antidote. Antiseptic agents, however, might be of great service in the treatment of fetid bronchitis, in cleansing and disinfecting cavities and the bronchial tubes, and in fortifying the constitution of the patient.

Dr. F. P. Kinnicutt, who closed the discussion, said that some of the antiseptic remedies had an undoubted value in removing foci of irritation and rendering the tissue in a measure aseptic. They arrested fermentation and had a stimulating effect upon the vital processes; and it was no doubt to such effects that the benefit observed from the use of creosote was due.

In the recent centennial celebration in this city the New York County Medical Association was officially represented by its president, Dr. Charles S. Wood, who acted as one of the aids to Gen.

Daniel Butterfield, chief marshal of the great civic parade on May 1. When the head of the procession reached Madison Square it was halted, and the chosen representatives of about a hundred societies of various kinds, of which the Association was one, marched from their rendezvous near by and preceded the column in passing President Harrison. On arriving in front of the reviewing stand they were drawn up in line before it, and Mayor Grant presented to the President in the name and behalf of the civic, industrial, benevolent and educational organizations there represented, an address engraved upon parchment and inclosed in a beautiful silver box. Upon the address was inscribed the date of the organization and incorporation, the purposes and the signature of the president of each society. The delegates then passed to seats especially reserved for them on the grand stand, south of the President, and assisted in reviewing the parade. The Executive committee of the County Association has ordered that the handsome insignia worn by Dr. Wood on this occasion shall be framed and carefully preserved as a memorial of its participation in the centennial celebration. P. B. P.

BOOK REVIEWS.

MEDICAL AND SURGICAL MONOGRAPHS. May Number. New York: Wm. Wood & Co.

There is published in the May number two monographs: The first upon "The Preventive Treatment of Calculous Disease and the Use of Solvent Remedies," by Sir Henry Thompson, F.R.C.S., M.B. The author states that we have the power to check the production of calculous matter at almost any stage of the complaint, and can almost certainly render its formation impossible if proper treatment be adopted. The dietetic treatment, upon which success largely depends, and the value of mineral waters are then fully discussed. The best, however, that modern science has done toward the solution of uric acid concretions, which are the basis of more than 90 per cent. of all calculi, is founded upon the use of potassium carbonate and the author unites with Sir William Roberts in agreeing that this is the most powerful solvent known, much better than either salts of sodium or lithium. Finally, it is necessary to admit that no evidence has yet been produced that the complete solution of a stone in the bladder has been effected by any alkaline agent whatever. The probabilities are in favor of the solution of small stones, but if large their solution is quite impossible.

The remainder of the volume, in fact, its greater portion, is devoted to "Sprains and their Consequences," by C. W. Mansell Moullin, M.A., M.D., F.R.C.S. The subject is very fully dealt with in some sixteen chapters, and the treatment is given in elaborate detail. The importance of the subject and the able treatment it has received in the hands of the author serve to recommend it.

THE INSANE IN FOREIGN COUNTRIES. By WILLIAM P. LETCHWORTH, President of the New York State Board of Charities. New York and London: G. P. Putnam's Sons. 1889.

This is a large octavo volume of 374 pages, containing numerous and valuable illustrations. The author spent seven months in diligent personal examination of the various kinds of provision made for the insane poor in England, Scotland, Ireland, Sweden, Denmark, France, Germany and other Continental countries, and has given the results of his investigations in this volume, preceded by a very interesting retrospective introductory chapter. Every person interested in the welfare of the insane poor, and the provisions made for their protection and support in different countries, will find this a most interesting and valuable volume; and equally so whether such person be a physician or not.

MISCELLANY.

SCIENTIFIC USES OF THE EIFFEL TOWER.—M. Janssen, of the Institute of France, is of opinion that the Eiffel Tower will have many scientific uses. One of the greatest difficulties of meteorological observations is the disturbing influences of the station of observation itself. How, for example, can a true deviation of the wind be observed if a purely local obstacle causes it to deviate? And how can a true temperature of the air be determined by a thermometer influenced by radiation from surrounding objects? Thus, the meteorological elements of great centers of habitation have to be taken outside those centers, and at a certain height above the soil. The Tower, since it rises to a great height, and from the nature of its construction does not modify in any way the meteorological elements to be observed, will get over this difficulty. A height of 300 yards is in itself not negligible quantity from the point of view of rainfall, temperature, and pressure, but these circumstances give all the more interest to the institution of comparative experiments on variations due to altitude; the electrical interchanges between the soil and the atmosphere can also be studied to advantage. Special arrangements can be made for avoiding accidents, and results of great interest should be obtained. M. Janssen recommends also the institution of a service of meteorological photography. A good series of photographs would give forms, movements, modifications which the clouds and atmospheric conditions undergo from sunrise to sunset. Thus a history of the skies would be written on a radius not hitherto dealt with. In physical astronomy various other observations might be taken, especially in relation to the study of telluric spectrum. M. Eiffel announces that three laboratories have already been arranged on the Tower. One will be devoted to astronomy, and the second will contain registering apparatus from the central bureau of meteorology, and will be devoted to physic and meteorology. MM. Mascart and Cornu expect to draw great advantages from its use in the study of the atmosphere. The second is

reserved for biology and micrographic study of the air, to be organized by M. Henocque. M. Cailletet is arranging a great mercurial monometer, with which he expects to obtain pressure as high as 400 atmospheres.—*British Medical Journal.*

MCLEAN COUNTY MEDICAL SOCIETY.—The regular monthly meeting of the McLean County Medical Society was held at the office of Drs. Darragh & Corley, on Monday, May 6th, at 2:30 P.M. There were present, Drs. Rhoda Galloway, C. F. Vandervoort, M. D. Hull, E. P. G. Holderness, N. F. Jordan, J. L. White, Wm. Hill, A. T. Darragh, H. Parkhurst, C. J. Corley, Secretary, G. M. Smith, S. T. Anderson, F. J. Parkhurst, C. Reedy, E. Mammen, F. J. Welch and L. A. Burr.

Dr. J. L. White, one of the Committee who went to Springfield in the interest of the Medical Practice Act, stated that in his opinion the majority of the Legislature were in favor of the above Act, and, furthermore, there was not the least danger of the section being stricken out.

Dr. Darragh reported a case of a young lady attending school in Indiana who had malignant scarlatina and when she was convalescing wrote home, and in a few days after some of the family were stricken with the above disease, supposed to have been produced by the letter paper. The following were appointed delegates to the State Medical Society meeting at Jacksonville, Ill.: Drs. F. J. Parkhurst and E. Mammen. To the American Medical Association meeting at Newport, R. I., Drs. Hull and Covey. Dr. Anderson then read an essay on "The Quinine Hobby." It was a witty and interesting one and received an attentive listening from all present.

LETTERS RECEIVED.

Dr. J. H. Etheridge, Chicago; Dr. John Barney, Dunkirk, N. Y.; Dr. C. M. Daniels, Buffalo, N. Y.; C. C. Purington, Boone, Ia.; Dr. J. S. Dorsey-Cullen, Richmond, Va.; Dr. W. H. Dunlop, Syracuse, N. Y.; W. F. Snorgrass, Excelsior, Mo.; J. A. T. Bernays, Minneapolis, Minn.; Dr. A. F. A. King, Washington; J. H. Bates, New York; Dr. Stanford E. Chaillé, New Orleans, La.; A. E. Walesby, Louisville, Ky.; Dauchy & Co., New York; W. P. Cleary, New York; I. Haldenstein, New York; Dr. J. H. Eldredge, East Greenwich, R. I.; Dr. W. D. De Long, Pikesville, Pa.; Dr. C. C. Fite, Knoxville, Tenn.; Dr. J. M. Dunham, Columbus, O.; Dr. Arthur J. Hall, Washington; Dr. J. V. Schofield, Harris City, Ind.; Dr. C. H. Franklin, Union Springs, Ala.; Dr. R. A. Kinloch, Charleston, S. C.; B. Pulskamp, Washington; Dr. T. E. Potter, St. Joseph, Mo.; M. Brewer, Monmouth, Ill.; Dr. J. G. Weaver, Strasburg, Pa.; Lea Bros. & Co., Philadelphia; T. A. McKimmill, Washington; Dr. F. Dowling, Cincinnati; Dr. E. P. Sale, Memphis, Tenn.; Nugent, Brown & Co., Fargo, Dak.; Dr. Willis G. Tucker, Albany, N. Y.; Dr. C. P. Thayer, Boston, Mass.; Dr. C. Thompson, New York; Dr. K. von Ruck, Asheville, N. C.; Dr. A. L. Hummel, Philadelphia; Dr. Geo. F. Cook, Oxford, O.; Dr. Samuel N. Nelson, Boston; Canton Surgical and Dental Chair Co., Canton, O.; Emma B. Orcutt, Hardwick, Mass.; Dr. E. J. Sheron, Sing Sing, N. Y.; Dr. C. E. McClary, Syracuse, N. Y.; Dr. Frank Billings, Chicago; Dr. C. Brown, Adrian, Ill.; Dr. W. H. Forbes, Richmond Hill, N. Y.; Dr. Wm. E. Quine, Dr. Chas. T. Parkes, Dr. W. E. Casselberry, Chicago; Dr. Robt. T. Edes, Washington; Dr. Joseph Eastman, Indianapolis; J. T. Petty, Washington; Dr. J. S. Riggs, Redland, Cal.; Dr. W. Franklin Coleman, Chicago.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from May 4, 1889, to May 10, 1889.

By direction of the acting Secretary of War, Capt. F. C. Ainsworth, Asst. Surgeon U. S. Army, will proceed to Albany, N. Y., on business connected with the Medical Department. Par. 7, S. O. 105, A. G. O., May 7, 1889.

Capt. Walter W. R. Fisher, Asst. Surgeon U. S. Army, is hereby granted leave of absence for one month. Par. 1, S. O. 30, Hdqrs. Dept. of California, San Francisco, Cal., April 21, 1889.

Capt. D. M. Appel, Asst. Surgeon, relieved from duty at Fort Sill, Ind. Ter., and ordered to Ft. Bliss, Tex.

Capt. S. G. Cowdrey, Asst. Surgeon, relieved from duty at Ft. Bliss, Tex., and ordered to Ft. Marcy, N. M.

Capt. Jas. A. Finley, Asst. Surgeon, relieved from duty at Ft. Assiniboine, M. T., and ordered to Ft. Totten, Dak.

Capt. Aug. A. DeLoffre, Asst. Surgeon, relieved from duty at Ft. Totten, Dak., and ordered to Columbus Bks., O.

Capt. B. D. Taylor, Asst. Surgeon, relieved from duty at Columbus Bks., O., and ordered to Ft. Sill, I. T. Par. 25, S. O. 104, A. G. O., Washington, May 6, 1889.

By direction of the acting Secretary of War, First Lieut. William P. Kendall, Asst. Surgeon, will be relieved from duty in the Dept. of California, after he shall have complied with the requirements of par. 2, S. O. 29, A. G. O., April 24, 1889, from these headquarters, and will then proceed to Ft. D. A. Russell, Wyo., for duty at that station. Par. 28, S. O. 104, A. G. O., May 6, 1889.

By direction of the Secretary of War, Capt. Paul R. Brown, Asst. Surgeon, is relieved from further duty in the Dept. of the Platte, and will proceed to Ft. Thomas, Ariz., and report in person to the commanding officer of that post for duty, and by letter to the commanding officer Dept. of Ariz. Par. 10, S. O. 105, A. G. O., May 7, 1889.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending May 11, 1889.

Medical Inspector Grove S. Beardsley, detached from the "Brooklyn," proceed home and wait orders.

P. A. Surgeon P. A. Lovering, detached from the "Brooklyn, proceed home and wait orders.

Asst. Surgeon Oliver D. Norton, detached from the "Brooklyn," proceed home and wait orders.

Surgeon J. A. Hawke, detached from the "Essex," proceed home and wait orders.

Asst. Surgeon C. F. Stokes, detached from the "Minnesota" and to the "Iroquois."

Surgeon John F. Bransford, orders to the "Iroquois" revoked, resignation accepted, to take effect May 4, 1890, with leave of absence granted to that date, with permission to leave the United States.

STATE MEDICAL ASSOCIATION MEETINGS IN 1889.

STATE.	SECRETARY'S NAME AND ADDRESS.	TIME AND PLACE.
Arkansas.	L. P. Gibson, Little Rock.	Pine Bluff, May 28.
Colorado.	H. W. McLauthlin, Denver.	Denver, June 18.
Connecticut.	N. E. Wordin, Bridgeport.	Hartford, May 22.
Dakota.	H. E. McNutt, Aberdeen.	Mitchell, June 20.
Delaware.	J. E. Ellegood, Laurel.	Dover, June 11.
Illinois.	D. W. Graham, Chicago.	Jacksonville, May 21.
Indiana.	E. S. Elder, Indianapolis.	Indianapolis, May 21.
Maine.	C. D. Smith, Portland.	Portland, June 11.
Massachusetts.	F. W. Goss, Boston.	Boston, June 11.
Minnesota.	C. B. Wetherle, St. Paul.	Minneapolis, June 20.
Missouri.	J. C. Mulhall, St. Louis.	Springfield, May 21.
Nebraska.	A. S. v. Mansfelde, Ashland.	Kearney, May 21.
N. Hampshire.	G. P. Conn, Concord.	Concord, June 18.
New Jersey.	Wm. Pierson, Orange.	Spring Lake, June 4.
New York.	E. D. Ferguson, Troy.	New York, Sept. 25.
Ohio.	G. A. Collamore, Toledo.	Youngstown, May 22.
Oregon.	C. C. Strong, Portland.	Portland, June 11.
Pennsylvania.	W. B. Atkinson, Philadelphia.	Pittsburgh, June 4.
Rhode Island.	G. D. Hershey, Providence.	Providence, June 13.
Vermont.	D. C. Hawley, Burlington.	Brattleboro, June 27. Burlington, Oct. 10.
Virginia.	L. B. Edwards, Richmond.	Roanoke, Aug. or Sept.
West Virginia.	J. L. Fullerton, Charlestown.	W. Sulphur Springs.